

>>: HELLO AND WELCOME TO THE FISH AND WILDLIFE SERVICES FIRST WIND ENERGY BROADCAST.

I AM CHRISTY JOHNSON-HUGHES WITH THE U.S. FISH AND WILDLIFE SERVICE AND I WILL BE YOUR HOST FOR THIS BROADCAST.

WE ARE COMING TO YOU FROM THE NATIONAL CONSERVATION TRAINING CENTER IN SHEPHERDSTOWN, WEST VIRGINIA.

WE HAVE A FEW THINGS TO COVER BEFORE WE GET STARTED. AND WHAT WE WOULD LIKE TO DO IS GO OVER SOME OF OUR HOUSEKEEPING ITEMS.

ONE OF THEM, WHICH IS HOW TO CHAT WITH US IN THE STUDIO.

AS YOU CAN SEE ON THE SCREEN, THERE IS A CHAT BOX, JUST TYPE IN YOUR QUESTION OR SUGGESTION AND THEN CLICK SAY AND WE WILL RECEIVE YOUR COMMENT OR QUESTION HERE IN THE STUDIO.

IF YOU ARE HAVING ANY PROBLEMS WITH THE STREAMING QUALITY OF YOUR VIDEO AND AUDIO, IF THEY ARE NOT SYNCING UP TOGETHER, THEN GO AHEAD AND CLICK FROM HIGH TO LOW UNDER THE VIDEO PHOTOGRAPH THERE THAT YOU SEE OF THE DEER.

IF YOU CLICK FROM HIGH TO LOW THAT SHOULD HELP RESOLVE ANY VIDEO RESOLUTION ISSUES YOU MIGHT HAVE.

SO AGAIN, WELCOME TO THE WIND ENERGY BROADCAST.

TODAY WE ARE GOING TO BE TALKING ABOUT THE SERVICES LAND-BASED WIND ENERGY GUIDELINES.

AS YOU CAN SEE, WE HAVE THE WEB ADDRESS UP.

WE WILL BE USING THE WIND ENERGY GUIDELINES TODAY AND YOU WILL SEE SOME PAGE NUMBERS ON THE SLIDES SO IF YOU WOULD LIKE TO REFER TO THAT DOCUMENT AS WE ARE TALKING ABOUT IT, GO AHEAD AND PULL UP THAT DOCUMENT OF THIS WEBSITE.

THIS LINK WILL ALSO BE PROVIDED IN THE FOLLOW-UP MATERIALS.

SO LET'S GO AHEAD AND GET STARTED.

AS YOU KNOW, THE U.S. FISH AND WILDLIFE SERVICE LAST YEAR PUBLISHED OUR LAND-BASED WIND ENERGY GUIDELINES.

AND THE MAIN COMPONENT OF THE GUIDELINES IS A THING CALLED THE TIERED APPROACH.

AND THAT IS PER THE RISK ASSESSMENT AND ANALYSIS THAT WE DO IN THE GUIDELINES.

AND HERE TO TALK ABOUT THE TIERED APPROACH WITH ME IN THIS DUTY IS DR. TABOR ALLISON.

WELCOME TO THE STUDIO DR. ALLISON.

BEFORE THANK YOU, CHRISTIE.

>>CHRISTY JOHNSON-HUGHES: DR. ALLISON COMES TO US FROM THE AMERICAN WIND WILDLIFE INSTITUTE AND HE IS THE DIRECTOR OF RESEARCH AND EVALUATION.

AND HE OVERSEES THE RESEARCH PROGRAM AND DEVELOPMENT OF WIND WILDLIFE ASSESSMENTS TOOLS.

HE ALSO ASSISTED WITH THE FEDERAL ADVISORY COMMITTEE AND HAS

SPENT QUITE A BIT OF TIME WORKING WITH AND ON THESE GUIDELINES AND ASSISTED WITH TRAINING IN THE PAST. SO WELCOME TO THE CONVERSATION. LIKE TO HAVE YOU.

>>TABER ALLISON: PLEASURE TO BE HERE. I ALWAYS ENJOY THIS.

>>CHRISTY JOHNSON-HUGHES: IT IS A GOOD TOPIC AND ONE OF OUR RARE OPPORTUNITIES TO ACTUALLY WORK TOGETHER WITHOUT GENERAL REGULATIONS AND WORK COOPERATIVELY.

SO I THINK IT IS A VERY EXCITING OPPORTUNITY FOR US.

SO LET'S MOVE ON TO THE TIERED APPROACH.

THE TIERED APPROACH IS AN ITERATIVE DECISION-MAKING PROCESS AND AS YOU CAN SEE ON THE SLIDE, IT INVOLVES COLLECTING INFORMATION AND INCREASING DETAIL AND QUANTIFYING POSSIBLE RISKS TO SPECIES OF CONCERNS AND THEIR HABITATS AND EVALUATING THOSE RISKS TO MAKE SITING, CONSTRUCTION AND OPERATION DECISIONS.

YOU WILL NOTE HERE THAT WE ARE USING SOME TERMS VERY SPECIFICALLY LIKE SPECIES OF CONCERN.

AND SO WE WILL GET INTO THAT IN A LITTLE BIT.

SO TABER, THE FIRST THING THAT I WOULD LIKE TO COVER IS THE GENERAL APPROACH OF THE TIERED APPROACH.

AS YOU CAN SEE, THERE ARE FIVE TIERS AND THE FIRST ARE PRECONSTRUCTION AND THE LAST TWO ARE POST- CONSTRUCTION AND WE WILL RUN THROUGH ALL FIVE OF THOSE TIERS.

THE FIRST PART OF OUR CONVERSATION TODAY WE ARE GOING TO TALK ABOUT TIERS ONE, TWO, AND THREE AND THEN WE WILL HAVE A ROUND TABLE DISCUSSION THAT EXPLORES TIERS THREE AND FOUR AND FIVE IN GREATER DETAIL.

SO WITH TABER, I WOULD LIKE TO GET STARTED WITH TIER ONE, OUR PRELIMINARY SITE EVALUATION AND THE LANDSCAPE SCALE SCREENING OF POSSIBLE SITES.

SO TABER, WHAT CAN YOU TELL ME ABOUT TIER ONE?

>>TABER ALLISON: WELL FIRST, TO GO BACK TO THE TIERED APPROACH IN GENERAL, AS YOU DESCRIBED IT'S AN ITERATIVE PROCESS, RISK BASED FRAMEWORK THAT GUIDES DECISION-MAKING AND POTENTIAL ASSESSMENT OR SITE ASSESSMENT OF POTENTIAL PROJECTS FOR WIND ENERGY DEVELOPMENT.

AND THE TIERS ARE ORGANIZED IN INCREASING COMPLEXITY AND DETAIL.

AND YOU GO THROUGH THE TIERED PROCESS AND COLLECT ENOUGH INFORMATION IN ORDER TO MAKE A DECISION WHETHER OR NOT TO PROCEED WITH DEVELOPMENT.

SO IN THE PROCESS OF DEVELOPING THIS RISK FRAMEWORK, THE FRAMEWORK ITSELF, THE TIERED BASED FRAMEWORK REPRESENTS

THE LATEST THINKING IN RISK ASSESSMENT.

AND THE TECHNICAL SUBCOMMITTEE, THE WIND ENERGY FEDERAL ADVISORY COMMITTEE BROUGHT THIS FRAMEWORK AND ADAPTED THIS FRAMEWORK FOR THE DEVELOPMENT OF WHAT BECAME THE WIND ENERGY GUIDELINES.

AND THE TECHNICAL SUBCOMMITTEE DRAFTED THE QUESTIONS THAT ARE THE FACES OF THE TIERED APPROACH.

AND ONE OF THE KEY ELEMENTS WITHIN THE TIERED FRAMEWORK IN EACH STEP IS PROBLEM FORMULATION.

SO AT THE BEGINNING OF EACH TIER YOU EVALUATE WHAT INFORMATION YOU NEED IN ORDER TO MAKE A DECISION OF WHETHER OR NOT TO PROCEED WITH DEVELOPMENT.

WHAT ARE THE UNCERTAINTIES AND WHAT DO YOU NEED TO DO IN ORDER TO REDUCE THOSE UNCERTAINTIES SO YOU CAN MAKE A DECISION.

SO EACH STEP BEGINS THAT WAY AND IN THIS SENSE THE TIERED APPROACH IS AN ADAPTIVE PROCESS THAT CAN BE MODIFIED TO SUIT THE PARTICULAR NEEDS OF A PARTICULAR SITE IN A PARTICULAR REGION OF THE COUNTRY.

SO YOU DON'T NECESSARILY APPLY OR DO EXACTLY THE SAME THING AT EVERY SITES.

WHAT YOU DO IS DRIVEN BY THE LEVEL OF UNCERTAINTY OR THE NEEDS THAT YOU IDENTIFY DURING THE PROBLEM FORMULATION STAGE IN A TIERED APPROACH.

SO WHEN WE START WITH TIER ONE, YOU ARE BASICALLY AT THE FUNDAMENTAL -- AT THE BEGINNING WHERE YOU ARE DOING A LANDSCAPE SCALE SCREENING.

SO AS WE WERE THINKING ABOUT THIS AND AS IT IS PRESENTED IN THE WIND ENERGY GUIDELINES, THIS TIER TYPICALLY WOULD BEGIN BEFORE A DEVELOPER HAS FOCUSED ON A PARTICULAR SITE.

AND THEY ARE THINKING WE MIGHT DEVELOP A PROJECT WITHIN THIS AREA, ON THIS LANDSCAPE, BUT WE HAVE NOT FOCUSED ON A PARTICULAR SITE.

SO THE DEVELOPER WOULD LOOK AT A VARIETY OF LANDSCAPE LEVEL VARIABLES IF YOU WILL IN ORDER TO DETERMINE WHETHER THERE ARE ISSUES OF CONSERVATION OR WILDLIFE CONCERN THAT MIGHT PRECLUDE DEVELOPMENT OF THE SITE.

THERE MIGHT BE ISSUES.

MY DEVELOPMENT IS PRECLUDED BY LAW.

THERE MIGHT BE CRITICAL AREAS OF WILDLIFE CONGREGATION.

THERE MIGHT BE LARGE IMPACT LANDSCAPES OF AN IMPORTANT TYPE THAT COULD BE AVOIDED BUT IT IS AT THAT STAGE THAT THE DEVELOPER SCREENS FOR WHETHER OR NOT THERE IS POTENTIAL FOR DEVELOPING PROJECTS LOOKING AT IT THROUGH THE LENS OF WILDLIFE CONSERVATION.

>>CHRISTY JOHNSON-HUGHES: SO THE DEVELOPER MIGHT BE LOOKING AT MULTIPLE SITES AT THIS POINT IN TIME ACROSS THE LANDSCAPE.

>>TABER ALLISON: RIGHT.

THERE IS NOT NECESSARILY AT THIS STAGE IN ITS PUREST FORM I GUESS I WOULD SAY, THE DEVELOPER HAS NOT NECESSARILY DECIDED THAT THERE IS A POTENTIAL SITE WITHIN THE REGION OF THE LANDSCAPE THAT THEY ARE CONSIDERING.

>>CHRISTY JOHNSON-HUGHES: OKAY.

THAT MAKES SENSE.

AND IT IS A VERY INTERESTING APPROACH BECAUSE IT IS AN ADAPTIVE STRATEGY.

AS YOU SAID IT WORKS THROUGH THE RISKS AND YOU EVALUATE THE RISKS BUT IT'S MOVING FORWARD WITH THE INFORMATION THAT YOU HAVE AND IT STARTS EARLY ON, BUT WITH PUBLICLY ACCESSIBLE INFORMATION BUT WE WILL GET TO THAT IN A LITTLE BIT.

HOW ABOUT IF WE TALK ABOUT TIER TWO AT THIS POINT WHICH IS THE NEXT STEP IN THE TIERED APPROACH WHICH IS THE SITE CHARACTERIZATION WHICH IS STILL A BROAD EVALUATION AND MAY INVOLVE ONE OR MORE POTENTIAL SITES BUT IT IS A LITTLE MORE NARROW.

WHAT IS YOUR TAKE ON THAT?

>>TABER ALLISON: SO AGAIN AT THIS STAGE YOU BEGIN WITH PROBLEM FORMULATION AFTER TIER ONE YOU ARE SCREENING MIGHT LEAD YOU TO CONCLUDE THAT THERE ARE ONE OR MORE POTENTIAL SITES THAT COULD BE DEVELOPED.

AND SO AT THIS POINT YOU WOULD DO A MORE DETAILED ANALYSIS OF THE POTENTIAL WILDLIFE ISSUES.

YOU MIGHT LOOK AT SPECIES PRESENCE AND ABSENCE.

WHAT IS KNOWN IN VARIOUS DATABASES LIKE NATURAL HERITAGE DATABASES FOR THESE ONE OR MORE POTENTIAL SITES?

AND IT MIGHT BE AT THIS STAGE WHERE YOU WOULD DO WHAT MIGHT BE CONSIDERED THE BOOTS ON THE GROUND.

YOU MIGHT SEND SOMEONE OUT FOR ONE OR TWO VISITS TO GET A LOOK AT THE SITE AND DO A QUICK ASSESSMENT OF ARE THERE POTENTIAL HABITATS FOR SOME KEY SPECIES THAT YOU NEED TO BE CONCERNED ABOUT.

>>CHRISTY JOHNSON-HUGHES: OKAY.

SO WITH TIER TWO, IT IS VERY SIMILAR TO TIER ONE AT THIS POINT.

A LOT OF QUESTIONS ARE THE SAME AND THAT IS DONE DELIBERATELY ISN'T IT AT THIS POINT?

>>TABER ALLISON: THAT'S RIGHT.

SO MANY PROJECTS MAY BEGIN THE ASSESSMENT MAY ACTUALLY BEGIN IN TIER TWO.

AND SO THE WAY THE GUIDELINES ARE WRITTEN AND THE QUESTIONS

IN EACH TIER, THERE WAS -- DEVELOPERS WERE ENCOURAGED. SO IF YOU ARE STARTING IN TIER TWO, AS YOU ARE ADDRESSING TIER TWO QUESTIONS, YOU SHOULD ALSO LOOK AT THE QUESTIONS FOR TIER ONE TO CONVINCING YOURSELF THAT THERE WERE NOT SOME ISSUES AT THAT STAGE.

AND FOR EXAMPLE, PARTICULARLY WHEN YOU ARE LOOKING FOR SPECIES OF CONCERN, YOU MIGHT FIND THAT IN YOUR FIRST LOOK AT AVAILABLE INFORMATION, THERE IS NO EVIDENCE THAT THE SPECIES ARE THERE.

BUT WHEN YOU DO YOUR FIRST BOOTS ON THE GROUND ASSESSMENT YOU WANT TO BOOK AND START THIS PROCESS OF CONFIRMING THEY ARE INDEED NOT THERE.

THERE IS NOT HABITAT FOR THESE SPECIES THERE OR SOMETHING LIKE THAT.

BECAUSE WRITTEN INFORMATION, WHAT WE HAVE IS NOT ALWAYS COMPLETE OR IT MAYBE OUT OF DATE AND YOU NEED TO ACTUALLY GET ON THE GROUND AND VERIFY WHAT YOU HAVE LOOKED FOR IN DATABASES, FOR EXAMPLE.

>>CHRISTY JOHNSON-HUGHES: OKAY, TO THINK ABOUT THE DATABASES, WE HAVE SOME DATABASES THAT WE HAVE USED OVER TIME THAT ARE PUBLICLY ACCESSIBLE AND I KNOW THAT YOU HAVE HELPED DEVELOP ONE AND SO WHY DON'T YOU GO AHEAD AND TELL US ABOUT THE LANDSCAPE ASSESSMENT TOOL.

>>TABER ALLISON: FOR SURE.

SO AS YOU SAY THERE ARE MORE AND MORE WHAT WE SAY OUR DECISION SUPPORT TOOLS FOR RENEWABLE ENERGY DEVELOPMENT COMING ONLINE.

IN PARTNERSHIP WITH THE NATURE CONSERVANCY DEVELOPED THE LANDSCAPE ASSESSMENT TOOL AND THIS TOOL WAS DEVELOPED SPECIFICALLY TO SUPPORT TIER ONE STUDIES, LANDSCAPE LEVEL SCREENINGS.

SO WHAT YOU HAVE IN THE LANDSCAPE ASSESSMENT TOOL IS OVER 1,000 DATA LAYERS.

IT'S NATIONAL IN SCOPE AND YOU HAVE OVER 1,000 DATA LAYERS. AND WHAT THE TOOL DOES IS YOU HAVE A SEARCH FUNCTION YOU CAN DRAW A POLYGON ON THE MAP AND THEN WHAT HAPPENS IS IT SEARCHES THESE THOUSAND PLUS DATA LAYERS AND PRODUCES A REPORT THAT SAYS HERE ARE POTENTIAL SPECIES OF CONCERN. THEY COULD BE FEDERALLY LISTED SPECIES, STATE LISTED SPECIES OR SPECIES THOUGHT TO BE VULNERABLE OR POTENTIALLY VULNERABLE TO WIND ENERGY DEVELOPMENT.

SO WHAT YOU GET IS A LIST SAYING THESE SPECIES COULD BE HERE. YOU ALSO IT SEARCHES THE PROTECTED AREA DATABASE.

IT SEARCHES THERE IS A DISTURBANCE DATA LAYER TO HELP YOU DETERMINE WHAT THE LAND USE IS AT THE SITES.

AND SO IT CAN HELP YOU WITH THE TIER ONE ANALYSIS AND IT CAN ALSO TEL A TEAR TO ANALYSIS IF YOU START AT THAT POINT. YOU CAN SAY HERE IS WHERE AM I. PROJECT IS, YOU CAN UPLOAD A SHAPE FILE THAT DEFINES YOUR PROJECT AND IT CAN TELL YOU HERE IS WHAT COULD BE HERE AND THIS IS WHAT YOU SHOULD BE LOOKING FOR.

>>CHRISTY JOHNSON-HUGHES: OKAY.

THAT IS REALLY INTERESTING BECAUSE THIS SOUNDS LIKE A REALLY GOOD TOOL AVAILABLE TO THE PUBLIC AND IT USES THE DEFINITION OF SPECIES OF CONCERN THAT IS IN THE WIND ENERGY GUIDELINES. SO THAT IS VERY HELPFUL.

THERE IS SOME ADDITIONAL TOOLS THAT ARE ALSO AVAILABLE IN ADDITION TO THE AWWI/TNC LANDSCAPE ASSESSMENT TOOL AND THAT WOULD BE SOME FEDERAL SOURCES SUCH AS THE INFORMATION PLANNING AND CONSERVATION SYSTEM AND THAT IS DATABASE OF TRUST RESOURCES THAT THE SERVICE OVERSEAS SO LIST OF FEDERALLY LISTED SPECIES, MIGRATORY BIRDS, REFUGE INFORMATION.

EVEN COASTAL BARRIER RESOURCE UNITS ETC.

SO THAT ALSO HAS A WEALTH OF INFORMATION.

IT'S NOT TARGETED TO WIND BUT COVERS A LOT OF INFORMATION AS WELL AS THE RECENTLY RELEASED -- I'M SORRY UNITED STATES GEOLOGICAL SURVEY BISON SYSTEM AND THIS IS A BROADER SCALE TYPE OF DATABASE THAT AGAIN IS NOT FOCUSED ON THE WIND NOR SPECIES OF CONCERN BUT DOES HAVE MORE THAN 1 MILLION -- 100 MILLION MAPS, RECORDS OF NEARLY EVERY LIVING SPECIES NATIONWIDE.

SO THAT IS A GREAT SOURCE OF INFORMATION AS WELL.

IN ADDITION, WE HAVE STATE LEVEL TOOLS, MANY OF YOU ARE FAMILIAR WITH THE NATURAL HERITAGE DATABASES.

WE ALSO HAVE THE CRUCIAL HABITAT ASSESSMENT TOOLS.

AND THAT WAS DEVELOPED THROUGH THE WESTERN GOVERNORS WILDLIFE COUNCIL.

AND THE CHATS ARE AVAILABLE FOR 17 STATES OUT WEST AND THEY PROVIDE INFORMATION NOT ONLY ON FEDERAL SPECIES BUT ALSO ON STATE LISTED SPECIES.

SO THERE ARE SEVERAL TOOLS THAT ARE AVAILABLE FOR USE.

SO THAT IS TIERS ONE AND TWO.

AND WE HAVE COVERED QUITE A BIT OF INFORMATION ABOUT BASIC, WHAT WE CAN FIND PUBLICLY INFORMATION IN OUR FIRST BOOTS ON THE GROUND EVALUATION.

SO LET'S MOVE ON TO TIER THREE AT THIS POINT IN TIME AND THIS IS WHERE WE SPEND A LOT OF TIME TALKING WITH OUR PARTNERS AND WITH CONSULTANTS AND WITH THE INDUSTRY.

THERE WE GO TIER THREE FIELD STUDIES.

AND THESE ARE TWO DOCUMENTS CITE WILDLIFE AND HABITATS AND PREDICT PROJECT IMPACTS AND QUANTITATIVE AND SCIENTIFICALLY RIGOROUS STUDIES TO ASSESS POTENTIAL RISKS.

SO THE IDEA IS THAT WE CAN ACTUALLY FEEL OUT HOPEFULLY WHAT IS OUT THERE AND THEN HAVE THE STUDIES BE USEFUL IN THE LARGER CONTEXT AS WELL.

SO LET'S TALK ABOUT TIER THREE.

>>TABER ALLISON: SURE.

SO YOU HAVE GONE THROUGH TIERS ONE AND TIERS TWO.

AND AT THE END OF EACH TIER, YOU HAVE THESE DECISION POINTS WHERE YOU EVALUATE THE INFORMATION YOU HAVE COLLECTED AND DETERMINE WHETHER OR NOT YOU SHOULD STOP.

WHETHER OR NOT YOU COULD PROCEED TO DEVELOPMENT OR WHETHER YOU NEED ADDITIONAL INFORMATION THAT THERE IS REMAINING UNCERTAINTY THAT YOU NEED TO REDUCE IN ORDER TO MAKE A DECISION.

AT THIS STAGE OF OUR CURRENT KNOWLEDGE MOST OF THE TIME WE WOULD PROBABLY GO FROM TIER TWO AND SAY WE NEED TO COLLECT MORE ADDITIONAL INFORMATION AND DO A TIER THREE STUDY.

AS YOU SAY THOSE ARE THE MORE RIGOROUS COMPLEX QUANTITATIVE ASSESSMENTS OF WILDLIFE USE, BEHAVIOR, ACTIVITY, ABUNDANCE THAT ARE RELEVANT TO ESTIMATING WHAT YOU MIGHT CALL EXPOSURE OR POTENTIAL EXPOSURE TO THE FACILITY WIND PROJECT THAT COULD PUT THE SPECIES AT RISK EITHER THROUGH COLLISION OR THROUGH SOME KIND OF HABITAT BASED IMPACTS.

SO AGAIN, THE GUIDELINES BEGIN THE TIER THREE BEGINS WITH A PROBLEM FORMULATION STAGE.

WHAT HAVE WE LEARNED IN TIER TWO AND WHAT DO WE NEED TO KNOW IN ORDER TO PREDICT IMPACT AND DETERMINE WHETHER OR NOT WE CAN PROCEED WITH DEVELOPMENT OF THE PROJECT OR NOT? SO AT THIS STAGE, AS WE DO IN THE GUIDELINE, WE DESCRIBE THE KINDS OF QUESTIONS WHICH ARE MORE DETAILED QUESTIONS DESIGNED TO PLEAD TO A PREDICTION OF IMPACTS.

AND THEN POTENTIALLY, IF YOU HAVE IMPACTS THAT YOU FEEL SHOULD BE AVOIDED OR MINIMIZED, WHAT SORT OF MITIGATION WILL YOU PROPOSE IN ORDER TO AVOID AND MINIMIZE THOSE PREDICTED IMPACTS?

AND AGAIN, IT IS ADAPTIVE.

THE SCOPE, THE INTENSITY, THE DURATION OF STUDIES, THE PARTICULAR STUDIES YOU USE, THE PARTICULAR SPECIES THAT WILL BE THE FOCUS OF YOUR STUDY WILL DEPEND ON THE CIRCUMSTANCES OF THE PROJECTS IN THE REGION IN WHICH YOU ARE WORKING.

IT IS NOT A ONE SIZE FITS ALL APPROACH SO THAT IS I THINK ONE OF THE ELEGANT NATURE OF THE TIERED APPROACH IS THAT IT IS ADAPTIVE AND FLEXIBLE AND YET PROVIDES A RIGOROUS FRAMEWORK

UNDER WHICH TO EVALUATE A PROJECT.

>>CHRISTY JOHNSON-HUGHES: AND THAT IS WHAT IS SO I THINK AMAZING AND INCREDIBLE ABOUT THE TIERED APPROACH. IT BUILDS AND IT IS ADAPTIVE.

WE HAVE FLEXIBILITY TO CRAFT SURVEYS TO MEET OUR NEEDS DEPENDING ON THE PROJECT AND AS YOU SAID ON THE LEVEL OF UNCERTAINTY.

SO THAT IS I THINK AN INCREDIBLE TOOL AND VERY USEFUL.

WE ALSO HAVE SOME TIER THREE TOOLS THAT WE CAN USE AS WE EVALUATE OUR PROJECTS.

OF COURSE UNDER TIER THREE, WE MAY ENCOUNTER A FEDERALLY LISTED SPECIES.

AND IF WE DO, THEN WE CAN USE THE SPECIES SPECIFIC SURVEY METHODOLOGIES.

MANY OF YOU ARE FAMILIAR WITH THE ONES FOR THE INDIANA BAT OR OTHER SPECIES.

WE ALSO HAVE THE RECENTLY RELEASED ECO- CONSERVATION PLAN GUIDANCE.

AND AGAIN, AS YOU WERE SAYING, IT IS IN TIERS ONE, TWO, OR THREE IF YOU IDENTIFY EAGLES IN THE AREA THAT MAY BE IMPACTED BY THE PROJECT, THEN YOU WOULD THEN USE THE ECO- CONSERVATION PLAN GUIDANCE TO FURTHER EVALUATE POTENTIAL RISKS TO EAGLES.

WE ALSO HAVE A TOOL WHICH WE DESCRIBE IN THE WIND ENERGY GUIDELINES THAT CAME FROM THE NATIONAL WIND COURT MATING COLLABORATIVE WHICH IS CALLED THE COMPREHENSIVE GUIDE TO STUDYING WIND ENERGY/WILDLIFE INTERACTIONS.

YOU WERE PART OF THE GROUP WHO BUILT WHAT WE OF ACTUALLY CALLED THE METRICS DOCUMENT.

WOULD YOU LIKE TO TALK A LITTLE BIT ABOUT WHAT THAT DOCUMENT IS AND HOW IT RELATES TO THE GUIDELINES?

>>TABER ALLISON: SO METHODS AND METRICS OR THE COMPREHENSIVE GUIDE THAT YOU WERE DESCRIBING WAS WRITTEN, DRAFTED AT THE SAME TIME THE TIERED APPROACH WAS BEING CREATED FOR THE WIND ENERGY GUIDELINES SO THAT TO MIRROR EACH OTHER TO SOME EXTENT.

AND IN THE GUIDELINES, WE DO PROVIDE OR DID PROVIDE AND THE SERVICE PROVIDES SOME GUIDANCE IN TERMS OF STUDY DESIGN AND DURATION BUT WE LEFT IT GENERAL.

AND IN THE CASE NOW OF THE COMPREHENSIVE GUIDE, IT GETS TO THE POINT WHERE YOU SAY THIS IS WHAT WE HAVE, WHAT ARE THE ESTABLISHED PROTOCOLS.

YOU CAN GO TO THE COMPREHENSIVE GUY AND GET MORE DETAILED INFORMATION ABOUT HOW TO EVALUATE OR MEASURE SPECIFIC WILD LIFE ISSUES THAT YOU MIGHT HAVE AT THE PROJECT.

>>CHRISTY JOHNSON-HUGHES: OKAY.

THAT IS A GREAT TOOL.

I HAVE FOUND IT TO BE VERY USEFUL FOR STARTING AT LEAST WITH YOUR INITIAL WHAT TYPE OF SURVEY, HOW LONG, WHAT DO I NEED. BECAUSE IN THE GUIDELINES, WE REALLY DO NOT PRESCRIBE CERTAIN DURATIONS OF PRECONSTRUCTION SURVEYS.

WE RECOMMEND AT LEAST A YEAR, BUT REALLY IT IS DEPENDENT UPON THE SPECIES AND THE PROJECT AND AS YOU SAID THE LEVEL OF RISK OR UNCERTAINTY THAT WE HAVE OUT THERE.

SO THERE ARE SEVERAL FACTORS THAT WEIGHT INTO HOW THOSE PRECONSTRUCTION SURVEYS ARE CONDUCTED.

>>TABER ALLISON: YEAH SO YOU MIGHT HAVE PROJECTS THAT ARE IN AREAS OR LANDSCAPE TYPES THAT ARE WELL STUDIED AND THE AMOUNT OF UNCERTAINTY ABOUT SPECIES OF CONCERNED IN THOSE KINDS OF LANDSCAPES IS RELATIVELY LOW WHEREAS IN OTHER AREAS YOU ARE WORKING IN SITUATIONS WHERE WE HAVE VERY LITTLE DATA. SO WHAT THE KIND OF INFORMATION AND THE AMOUNT OF INFORMATION YOU GATHER OR NEED TO GATHER WILL VARY FROM SITE TO SITE.

AND SO ONE YEAR MAY BE SUFFICIENT IN SOME PLACES AND YOU MADE TO -- NEED TO DO MULTIPLE YEARS AND OTHER PLACES DEPENDING ON VARIATION AND THE LEVEL OF UNCERTAINTY.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY.

WELL, WE ARE GOING TO EXPLOIT THIS IN MORE DETAIL WITH OUR ROUNDTABLE DISCUSSION.

SO THANK YOU VERY MUCH DR. ALLISON AND WE WILL CHAT AGAIN SHORTLY AND IN THE MEANTIME, WHY DON'T WE GO AHEAD AND START WITH OUR ROUNDTABLE DISCUSSION.

>>CHRISTY JOHNSON-HUGHES: HELLO AND WELCOME TO OUR ROUNDTABLE DISCUSSION.

I HAVE DR. TABER ALLISON WITH ME HERE AT THE TABLE AND I HAVE THREE OTHER JUST WHO HAVE JOINED ME SO THAT WE CAN TALK ABOUT TIER THREE IN MORE DETAIL AND ALSO EXPLORE TIERS FOUR AND FIVE.

I WOULD LIKE TO START WITH JIM.

JIM LINDSEY FROM NEXT ERA ENERGY.

IS THE PRINCIPAL BIOLOGIST AND PROJECT MANAGER AND INVOLVED IN VARIOUS NATURAL RESOURCE PROTECTION PROGRAMS AND WETLAND RESTORATION PROJECTS IN ALL ASPECTS OF WILDLIFE INTERACTIONS WITH HIS AGENCY.

>>JIM LINDSAY: THANK YOU FOR HAVING ME.

>>CHRISTY JOHNSON-HUGHES: YOU ARE WELCOME.

THEN WE HAVE STU WEBSTER.

HE OVERSEES REGULATORY AND ENVIRONMENT COMPLIANCE AND CONSTRUCTION OF WIND AND SOLAR PIPELINE AS WELL AS 5700 MEGAWATTS OF WIND AND SOLAR FACILITY SO WELCOME.

>>STU WEBSTER: THANK YOU, CHRISTY.

>>CHRISTY JOHNSON-HUGHES: OF COURSE WE HAVE MARY CONNOR MARY IS THE ENVIRONMENTAL PROGRAM MANAGER AND SHE WORKS IN THE BOLINGBROOK ILLINOIS OFFICE AND IS RESPONSIBLE FOR ENVIRONMENTAL COMPLIANCE FOR OPERATING WIND FLEET OF 29 WINDFARMS IN 11 STATES.

SO THANK YOU FOR JOINING US.

AND LET'S GET STARTED TALKING A LITTLE BIT MORE ABOUT THE WIND ENERGY GUIDELINES.

ALL OF YOU HAVE BEEN INVOLVED IN WIND ENERGY GUIDELINES AT VARIOUS DEGREES IN DIFFERENT LENGTHS OF TIME.

SO STU, TELL US A LITTLE BIT ABOUT YOUR BACKGROUND WITH THE WIND ENERGY GUIDELINES.

>>STU WEBSTER: SURE.

IN OUR COMPANIES HISTORY OF WIND DEVELOPMENT WE FOUND OURSELVES MANY TIMES CONFLICTED WITH THE TYPES OF CONVERSATIONS THAT WE WOULD HAVE WITH NON-ENTRY STAKEHOLDERS ABOUT WHAT WAS APPROPRIATE LEVEL OF ENGAGEMENT, COMMUNICATION AND SO THAT ONE THE FEDERAL ADVISORY COMMITTEE WAS FORMED WHEN WE WERE INVITED TO PARTICIPATE ON THAT, WE FELT LIKE THAT WAS ONE OF THE BEST OPPORTUNITIES TO ADDRESS THE ITEMS THEY'VE HAD OVER THE YEARS LEADING UP TO THAT.

WE FELT FOR EFFECTIVE COMMUNICATION YOU REALLY NEED TO HAVE SORT OF THREE LINKS TO THIS TOOL, IF YOU WILL.

WE FELT THAT YOU NEED TO HAVE A COMMON LANGUAGE.

YOUR STRUCTURE NEEDS TO BE UNDERSTOOD BY BOTH PARTIES AND AGREED UPON AND YOU NEED TO BE ABLE TO UNDERSTAND ON SOME SUBSTANTIVE LEVEL WHAT THE EXPECTATIONS ARE OF THE PARTY THAT YOU ARE ENGAGED WITH AND VICE VERSA.

AND WE FELT LIKE THE FEDERAL ADVISORY COMMITTEES MISSION OR DIRECTIVE FROM THE SECRETARY WAS TO DERIVE A SET OF GUIDELINES THAT BY VIRTUE OF THE MULTI- STAKEHOLDER PROCESS WOULD ACCOMPLISH THAT.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY.

AND I THINK YOU ARE RIGHT IT'S THAT COMMON LANGUAGE, THAT UNDERSTANDING OF WHAT IS NEEDED IS SO IMPORTANT FOR ALL OF US TO WORK TOGETHER.

JIM, TELL US ABOUT YOUR INVOLVEMENT WITH THE WIND ENERGY GUIDELINES.

>>JIM LINDSAY: WE PARTICIPATE ON THE FEDERAL ADVISORY COMMITTEE.

PERSONALLY MY INVOLVEMENT GOES BACK TO THE ORIGINAL GUIDELINES AND THROUGH THE NATIONAL WIND COORDINATING WORKING GROUP COLLABORATIVE WE TALKED ABOUT HOW TO

IMPROVE THOSE GUIDELINES WITH THE COLLABORATIVE APPROACH AND IT INVOLVED AGAIN STAKEHOLDERS.

WE CONSIDERED OTHER SUCCESSFUL COLLABORATIONS SUCH AS THE INTERACTION SUCCESSES AND THEN THIS PROCESS DID EVENTUALLY EVOLVED INTO FORMAL FEDERAL ADVISORY COMMITTEE WHICH DELIVERS THE RECOMMENDATIONS IN THE DEPARTMENT OF THE INTERIOR THAT RESULTED IN THE FINAL GUIDELINES THAT WE ENJOY TODAY.

>>CHRISTY JOHNSON-HUGHES: AND I THINK YOU BRING UP A VERY GOOD POINT ABOUT THE MULTI- STAKEHOLDER ELEMENT OF THE DEVELOPMENT OF THE WIND ENERGY GUIDELINES.

IT WAS NOT JUST WIND ENERGY DEVELOPERS AND FISH AND WILDLIFE SERVICE IT WAS CONSERVATION ORGANIZATION AND STATES AND TRIBES WHO ALL PARTICIPATED EQUALLY IN THE PROCESS OF DEVELOPING THESE GUIDELINES.

>>JIM LINDSAY: AND THE DOCUMENT AT THE END.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY.

MARY SO WHAT WAS YOUR INVOLVEMENT WITH THE WIND ENERGY GUIDELINES?

>>MARY CONNOR: WE WERE NOT A MEMBER OF THE FEDERAL ADVISORY, BUT WE WERE ABLE TO PARTICIPATE IN THE DEVELOPMENT LIKE OTHER STAKEHOLDERS IN THE WIND ENERGY GUIDELINES DEVELOPMENT THROUGH A VARIETY OF DIFFERENT PROCESSES AND WE WERE ABLE TO PARTICIPATE IN WEBCAST, CONFERENCE CALLS AND ALSO TO HELP DEVELOP THE TRAINING AND ATTEND THE TRAINING FOR THE WIND ENERGY GUIDELINES FOR THE IMPLEMENTATION. SO ALTHOUGH NOT MEMBERS OF THE FEDERAL ADVISORY COMMITTEE I FEEL LIKE WE STILL HAD A STAKE IN THE PROCESS AND THE DEVELOPMENT OF THE GUIDELINES.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY.

IMPLEMENTATION IS JUST AS IMPORTANT AS DEVELOPMENT AND PART OF IMPLEMENTATION IS TRAINING SO THAT'S A CRITICAL PART OF ALL OF THIS.

>>MARY CONNOR: EXACTLY.

>>CHRISTY JOHNSON-HUGHES: SO IN YOUR OPINION MARY, WHAT IS THE MOST VALUABLE ELEMENT OF THE GUIDELINES?

>>MARY CONNOR: THE MOST IMPORTANT ELEMENT OF THE GUIDELINES IS REALLY OPENING UP COMMUNICATION BETWEEN THE DEVELOPER AND THE OPERATOR OF THE WIND FARM TO THE U.S. FISH AND WILDLIFE FIELD OFFICE AS WELL AS THE STATE WILDLIFE AGENCY. AND THIS IS CRUCIAL BECAUSE COMMUNICATION OCCURS FROM THE START OF THE PROJECT ALL THE WAY THROUGH THE ENTIRE OPERATION AND LIFE OF THE PROJECT.

AND STARTING THAT COMMUNICATION EARLY WITH BOTH THE FEDERAL AND STATE AGENCIES IS SO IMPORTANT SO THAT EVERYONE HAS A

CLEAR UNDERSTANDING OF THE PROJECT, WHAT IS BEING DONE ON THE PROJECT AND ALSO HELPS TO ESTABLISH BUILDING RELATIONSHIPS AS WELL.

BECAUSE THE PROJECT IS GOING TO BE THERE FOR UP TO 30 YEARS OR MORE.

SO BUILDING THOSE RELATIONSHIPS ARE IMPORTANT.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY.

AND LIKE YOU SAID THROUGH THE LIFE OF THE PROJECT IT'S NOT THAT WE FINISH IT AND IT'S FORGOTTEN.

IT CONTINUES FOR THE LIFE OF THE PROJECT.

JIM, DID YOU WANT TO ADD?

>>JIM LINDSAY: ALSO GREAT VALUE IS THE GUIDELINES PROVIDING THE ROADMAP OF WHAT IS EXPECTED OF THE DEVELOPER AND WHAT'S EXPECTED OF THE FISH AND WILDLIFE SERVICE AND THAT ADDS VALUE TO THE PROCESS.

>>CHRISTY JOHNSON-HUGHES: YOU ARE RIGHT.

SO BACK TO TIERED THREE.

WE WERE TALKING ABOUT TIERED THREE STUDIES BEFORE WITH TABER AND I.

AND AS PROJECT DEVELOPERS AND OPERATORS WHAT ARE YOUR PERSPECTIVES ON TIER THREE STUDIES.

TIM YOU HAVE WORKED WITH THIS FOR A WHILE WHAT ARE YOUR THOUGHTS ON THIS?

>>JIM LINDSAY: THIS IS A PROCESS OF COMMUNICATION WHERE YOU ARE WORKING WITH THEM YOU ARE BUILDING ON WHAT YOU HAVE LEARNED AND YOU ARE COMMUNICATING WITH THE SERVICE AND THE TIER THREE PROTOCOL DESIGN, BOUNCING IDEAS OFF OF EACH OTHER AND THE TIER THREE STUDIES SHOULD BE DESIGNED TO ADDRESS THE SPECIES THAT APPEAR TO BE OF MORE CONCERN BASED ON WHAT YOU HAVE LEARNED IN TIER ONE AND TIER TWO.

AND AGAIN IF YOU DON'T KNOW THE SCOPE OF THE STUDIES, TIER THREE CAN BECOME QUITE COSTLY.

SO WHAT WE ARE TRYING TO DO WITH TIER THREE IS ASSESS RISK TO SPECIES THAT MAY APPEAR TO POSE MORE OTHER RISK IN TIER ONE AND TIER TWO.

AGAIN WE HAVE TO CONSIDER TIER THREE TIMING AND SCHEDULING AS IT RELATES NOT ONLY TO THE PROJECT BUT AS IT RELATES BIOLOGICALLY TO WHAT'S GOING ON IN THE FIELD.

AS I TELL MY DEVELOPERS THE WILDLIFE DOES NOT CARE ABOUT YOUR DEVELOPMENT SCHEDULE IF YOU ARE NOT READY TO GO THIS SPRING THAT WE BASICALLY HAVE LOST THAT TIMEFRAME AND WE WILL HAVE TO PICK IT UP THE FOLLOWING SPRING IF INDEED OUR STUDY INVOLVES MIGRATORY BIRDS AND MIGRATION SEASONS, WHICH OF COURSE IT USUALLY DOES.

AND SO WE NEED TO FACTOR THESE BIOLOGICAL FACTORS INTO A

PROJECT SCHEDULE OR WE GET DELAYED AND AGAIN I THINK THE LAST POINT I WOULD LIKE TO MAKE IS THAT THE TIER THREE STUDIES ARE CRITICAL TO SITING WHICH IS ONE OF THE MOST VALUABLE TOOLS WHICH IS MINIMIZING THE RISKS TO WILDLIFE AND HOW DO YOU FINALLY GET DOWN TO MICRO SITING PROPOSED WIND ENERGY PROJECTS.

>>CHRISTY JOHNSON-HUGHES: SO THERE ARE SEVERAL CONSIDERATIONS THAT GO INTO THIS LARGE SCALE LANDSCAPE PLAN BUT ALSO SMALLER SCALE – SCALE MICRO SITING.

HOW DID THAT FIT IN TABER WITH THE PROBLEM FORMULATION?

>>TABER ALLISON: I DID WANT TO COME BACK TO THAT WHEN JIM WAS TALKING ABOUT THE NARROWING OF THE SCOPE OF ASSESSMENT.

AND THAT FITS IN VERY WELL WITH THE GOALS OF PROBLEM FORMULATION.

AS YOU LEARN AND AS YOU PROGRESS THROUGH TIERS WHEN IN TIER TWO YOU GATHER MORE INFORMATION.

YOU LEARN WHAT THE FOCUS OF YOUR ASSESSMENT SHOULD BE AND THE PROBLEM FORMULATION OF TIER THREE IS HELPING YOU NARROW THAT SCOPE.

>>CHRISTY JOHNSON-HUGHES: THANK YOU.

I THINK THAT IS VERY IMPORTANT.

ALL OF THESE ELEMENTS GO INTO UNDERSTANDING THE PROJECT DESIGN AND ALSO THE NEEDS OF WILDLIFE AND THE POTENTIAL IMPACT YOU HAVE THE PROBLEM FORMULATION BUT WE ALSO OF A VARIETY OF OTHER ELEMENTS THAT PLAY INTO THIS.

SO THERE ARE A VARIETY OF CONSIDERATIONS BUT HOW CAN WE WORK BEST TOGETHER THROUGH ALL THESE CONSIDERATIONS?

WHAT ARE YOUR THOUGHTS ON THAT?

>>STU WEBSTER: I THINK THE CHALLENGE WITH WHAT WE ARE THINKING OF HERE IS THE VARIETY OF CONSTRAINTS THAT ARE PRESENT WITH DEVELOPING WIND ENERGY.

YOU HAVE PRACTICAL CONSTRAINTS SUCH AS WIND RESOURCE IMPACT, LANDOWNER INTEREST FOR CONCERNS.

THERE'S NOT REALLY A WIND PROJECT OUT THERE THAT'S OPTIMIZED WITH RESPECT TO THE WIND ENERGY POTENTIAL OF THE SITE.

IT'S IDEALIZED THROUGH TAKING A BALANCED APPROACH THROUGH A VARIETY OF OTHER CONSTRAINTS.

AND LIKEWISE WITH WILDLIFE BEEN ONE OF THE CONSTRAINTS THE WILDLIFE CONSIDERATIONS ARE ALSO NOT OPTIMIZED RELATIVE TO THE LOCATIONS BUT IT IS IDEALIZED TO THE BALANCING OF ALL THE OTHER CONSTRAINTS.

THERE IS ANOTHER ASPECT OF CONSTRAINTS THAT OFTEN TALKED ABOUT AND SOMETIMES INTENSE CIRCUMSTANCES WITH THE NON-INDUSTRY STAKEHOLDERS THE IDEA OF THE SHORT TIME FRAME

THAT WIND HAS TO GET TURBINES IN THE GROUND IN TIME PRIMARILY DRIVEN BY [INAUDIBLE] BUT OTHER CIRCUMSTANCES OUT THERE AS WELL.

AND I THINK BY AND LARGE I WOULD BE GOING AGAINST THE GRAIN TO SAY I ACTUALLY DON'T FIND THAT CONSTRAINING TO BE A BAD THING. AND LET ME EXPLAIN A LITTLE BIT.

IT'S A BIT ODD TO SAY.

RENEWABLE ENERGY IS FUNDAMENTALLY A GOOD PROGRESSION FORWARD IN TERMS OF DIVERSIFYING THE ENERGY BALANCE IN THE COUNTRY, REDUCING GREENHOUSE GASES RELEVANT TO THE CLIMATE CONCERNS WHICH ARE TALKED ABOUT BUT PEOPLE LOSE TRACK OF THE FACT THAT THERE'S A VARIETY OF OTHER IMPACTS RELATED TO CONVENTIONAL FUEL OR CONVENTIONAL GENERATION THAT ARE BEING AMELIORATED AS A COMPONENT OF WIND ENERGY DEPLOYMENT.

I THINK WHILE THAT ALMOST BECOMES RHETORIC ON PART PRIMARILY OF THE INDUSTRY.

AS ADVOCATES I THINK YOU ARE STARTING TO SEE THIS MATERIALIZE IN SUBSTANTIVE REPORTS.

JUST LAST WEEK THE NRDC RELEASED A REPORT THAT SHOWS FOR THE FIRST TIME SINCE THE INDUSTRIAL REVOLUTION ENERGY DEMAND CONTINUES ITS UPWARD CLIMB GREENHOUSE GAS EMISSIONS AND POLLUTION EMISSIONS ARE DECLINING AND WIND IS A COMPONENT OF THAT.

AND NOT END IN MATERIAL COMPONENT OF THAT.

AND THAT IS A REALLY GOOD THING AND WE WANT TO CONTINUE TO PROMOTE THAT WHILE TAKING INTO CONSIDERATION ALL THE OTHER CONCERNS FOLKS HAVE WITH RESPECT TO BIOLOGICAL INTEGRITY AND ECOLOGICAL SERVICES AND WHAT HAVE YOU.

SO I THINK WHAT'S AN ODD OUTGROWTH OF THE WAY WE HAVE MANAGED OURSELVES IN INTERACTING WITH THE NON-INDUSTRY STAKEHOLDERS AS IT RELATES TO WILDLIFE ISSUES PARTICULARLY IS WE HAVE APPROACHED IT IN A COLLABORATIVE WAY.

WE HAVE BEEN UNGUIDED UNTIL THESE RECENT GUIDELINES BUT BY AND LARGE WE HAVE AT LEAST ATTEMPTED TO DERIVE COMMUNICATION AND THE FUNDAMENTALS OF COMMUNICATION BUT WE HAVE APPROACHED THINGS COLLABORATIVELY AND I THINK IT IS ODD BECAUSE I'M NOT ENTIRELY CONVINCED THAT IT WEREN'T FOR THE SHORT-TERM NATURE OF THE CONSTRAINTS OF THE WIND INDUSTRY THAT WOULD NOT HAVE DEVOLVED INTO THE FISH AND WILDLIFE SERVICE DEFINITELY IN THE STATE AGENCIES PERHAPS SOME DEGREE OR ANOTHER USUALLY INTERACT WITH INDUSTRIES IN A MORE COMBATIVE MODE BECAUSE THEY HAVE TIME TO TAKE THINGS TO THE FURTHEST EXTREME.

WE DON'T.

SO COLLABORATION IN OUR MIND IS EFFICIENCY AND EFFECTIVENESS

IN ADDRESSING THESE CHALLENGING ISSUES.

>>CHRISTY JOHNSON-HUGHES: THAT'S A REALLY INTERESTING PERSPECTIVE AND ONE I HAVE NOT REALLY EVEN THOUGHT ABOUT EVEN THOUGH WE HAVE ALL ACKNOWLEDGED SOME OF OUR CONSTRAINTS.

BUT I DO THINK THAT IS A REALLY GOOD POINT.

LIKE YOU SAID WE REALLY ONLY HAVE TIME TO WORK COLLABORATIVELY AND NOT COMPETITIVELY.

AND WE ALL BENEFIT FROM WORKING COLLABORATIVELY AT THIS POINT.

BUT SOME THINGS WE HAVE TO WORK COLLABORATIVELY AREN'T -- ON ARE THE STUDIES WE ARE CONDUCTING.

TIER THREE CONSTRUCTION STUDIES.

WE HAD A LOT OF DISCUSSION ABOUT THE UTILITY OF THESE STUDIES. AS DEVELOPERS AND OPERATORS, JIM, WHAT ARE YOUR PERSPECTIVES ON THESE TIER THREE STUDIES?

>>JIM LINDSAY: DO YOU WANT TO TALK ABOUT SPECIFIC TIER THREE STUDIES AT THIS POINT?

>>CHRISTY JOHNSON-HUGHES: WHAT ARE YOUR PERSPECTIVES ABOUT THE UTILITY OF THE STUDIES AND YOU KNOW THE BENEFITS THAT CAN BE DERIVED FROM THESE STUDIES AT THE WIND SITES THAT YOU HAVE INTERACTION WITH?

>>JIM LINDSAY: I WILL START WITH WE TYPICALLY DO THIS BUT WE DON'T BECAUSE THERE IS NO TYPICAL TIER THREE STUDY PER SE. IT'S NOT A COOKIE-CUTTER SITUATION.

THAT SAID, THERE ARE THINGS WE DO THAT ARE BASIC UTILITARIAN WILDLIFE SURVEYS.

WE DO AVIAN POINT COUNT SURVEYS, [INAUDIBLE] CONNECTOR SURVEYS ARE VERY USEFUL IN TIER THREE.

BUT AGAIN WE TAKE WHAT WE LEARNED IN TIER ONE AND TIER TWO. WE TAKE WHAT WE'VE LEARNED FROM OUR COMMUNICATIONS WITH STATE AND FEDERAL WILDLIFE AGENCIES AND THEN WE START TO AS TABER TALKED ABOUT, NARROW OUR STUDY FOCUSED.

FOR INSTANCE, WE ARE NOT GOING TO DO WITH BEING TRAINED SURVEYS IN CALIFORNIA.

BUT IF WE ARE IN THE CENTRAL FLYWEIGHT WHOOPING CRANES ARE VERY IMPORTANT AND WE WILL DO THE SURVEYS AND THE HABITAT SURVEYS BECAUSE OBVIOUSLY THAT IS A RISK THAT WE WANT TO AVOID.

WE WOULD PROBABLY DO, IN FACT WE WOULD DO A HIGH LEVEL THAT RISK ANALYSIS HABITAT LOOKING AT THE HABITAT, LOOKING AT THE [INAUDIBLE] AND THEN MAKE THE DETERMINATION AS TO WHETHER WE WOULD WANT TO MOVE TO TIER THREE STUDIES.

AND WE WOULD THEN ALSO FURTHER DELINEATE STUDIES DO WE JUST NEED BACK -- BACKED ACTIVITY OR DO WE WANT TO COLLECT THE

PHYSICAL DATA THAT WE CAN RUN THROUGH SOFTWARE AND DETERMINE SPECIES?

SO AGAIN JUST ACTIVITY OR ARE WE ACTUALLY LOOKING TO DO SURVEYS FOR CERTAIN LISTED SPECIES.

SO THAT IS THE ITERATION OF YOUR RISK.

ARE YOU IN AN AGRICULTURAL FIELD IN THE MIDDLE OF NOWHERE NEAR NOTHING AND YOU WILL PROBABLY NOT DO ACOUSTICAL MONITORING.

BUT ARE THERE CRITICAL HABITATS AND CRITICAL SPECIES THAT YOU WANT TO ADDRESS IN YOUR TIER THREE STUDIES?

AND AGAIN THESE ARE ALL COMMUNICATED WITH BOTH STATE AND FEDERAL WILDLIFE AGENCIES TO HELP DEVELOP A TIER THREE MONITORING STRATEGY, IF YOU WILL.

AND THEN WE WILL MODIFY OUR STRATEGY BASED ON WHAT WE DISCUSSED AND TAKE IT INTO THE FIELD.

AGAIN I WOULD LIKE TO POINT OUT THAT TIER THREE IS ONE COST REALLY START TO GO UP.

YOU ARE USING CONSULTANTS.

YOU HAVE FIELD CREW OUT IN THE FIELD.

YOU ARE DEVELOPING REPORTS.

AND AGAIN YOU ARE SPENDING TIME WITH YOUR AGENCIES GOING OVER THAT MATERIAL.

TIER THREE STUDIES ARE ALSO USEFUL IN DECIDING -- DESIGNING TIER FOR STUDIES POST CONSTRUCTION MONITORING BECAUSE AGAIN ONE SIZE DOES NOT FIT ALL FOR POST- CONSTRUCTION MORTALITY MONITORING AND YOU'LL TAKE WHAT YOU LEARNED IN THE FIRST THREE TIERS TO DESIGN A COST EFFECTIVE AND YET STATISTICALLY DEFENDABLE POST CONSTRUCTION MORTALITY MONITORING SO WE CAN TEST HOW WELL WE DID IN THE FIRST THREE TIERS.

AND THEN AGAIN WE ALSO ON OCCASION DURING TIER THREE STUDIES, WE MAY RAISE A TIER FIVE STUDY WHICH WE WILL TALK ABOUT A LITTLE LATER.

BUT THOSE ARE RESEARCH ISSUES.

THOSE ARE QUESTIONS THAT MIGHT BE ANSWERED AT THE FACILITY LEVEL.

AND MAYBE ANSWERED AT A HIGHER LEVEL.

THOSE ARE SOME OF MY GENERAL THOUGHTS ON ACTUAL TIER THREE STUDIES.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY.

AND ONE OF THE THINGS THAT WE HAVE TALKED ABOUT WITH TIER THREE STUDIES IS THEY DO COST A LOT OF MONEY.

THEY DO TAKE TIME TO CONDUCT PROPERLY AND IT'S THIS BALANCING ACT OF WHAT CAN WE LEARN FROM THE TIER THREE STUDIES AND WHAT CAN THE COMPANY ACCOMPLISH SO IT'S ALSO A FOCUSING OF THOSE PRIORITY ISSUES REALLY.

WHICH SPECIES OF CONCERN ARE REALLY OUT THERE THAT WE ARE REALLY CONCERNED ABOUT THAT MAY HAVE AN ELEMENT OF RISK THAT WE NEED TO EXPLORE FURTHER SO THAT THAT WAY ALL OF OUR RESOURCES ARE FOCUSED ON THE THINGS WE NEED TO REALLY WORRY ABOUT VERSUS SPREADING ALL OF OUR RESOURCES. ADVOCATES BACK A LITTLE BIT TO THE CONSTRAINTS CONSTRUCTIONS WE HAD WITH STU AND IT'S REALLY IMPORTANT. AND WE STARTED TALKING ABOUT THE FACT THAT TIER THREE LEADS INTO TIER FOR WHICH ARE THE POST CONSTRUCTION STUDIES AND WE HAVE HAD SOME DISCUSSION ABOUT TIER FOUR BEFORE WE GET TO TIER FOR YOUR THOUGHTS ON HOW IMPORTANT IT IS TO REALLY FOCUS ON THE SPECIES?

WHAT IS YOUR EXPERIENCE WITH THAT WHEN FISH AND WILDLIFE SERVICE COMES TO AN SAYS I HAVE THIS LONG LIST OF SPECIES I'M CONCERNED ABOUT AND YOU SAY LET'S WORK ON THIS TOGETHER. HOW DO YOU APPROACH THAT AND WORK THROUGH THAT?

>>MARY CONNOR: I THINK THAT'S A GOOD QUESTION AND ONE OF THE MOST IMPORTANT THINGS AND JIM ALLUDED TO THIS A LITTLE BIT BEFORE IS EACH PROJECT IS GOING TO BE DIFFERENT SO A PROJECT YOU ARE BUILDING IN WEST VIRGINIA WILL BE TOTALLY DIFFERENT THAN A PROJECT YOU ARE WORKING ON IN NEBRASKA AND SO THE DEPOSIT FEE IS DIFFERENT AND THE SPECIES ARE DIFFERENT AND THAT NEEDS TO BE TAKEN INTO CONSIDERATION.

PRIOR TO THE WIND ENERGY GUIDELINES IT WAS MORE OF A COOKIE-CUTTER APPROACH SO THERE WAS A LAUNDRY LIST OF TIER THREE STUDIES THAT WOULD BE DONE. PRECONSTRUCTION STUDIES AND IT TOOK A LOT OF MONEY AND TIME TO DO THE STUDIES AND NOT ALL OF THEM WERE NEEDED BECAUSE OF THE LOCATION OF THE PROJECT.

SO NOW WITH THE WIND ENERGY GUIDELINES THROUGH THE COMMUNICATION PROCESS STARTING IN TIER ONE AND TIER TWO AND WORKING WITH THE LOCAL FIELD OFFICES FROM U.S. FISH AND WILDLIFE AND THE STATE AGENCIES THEY HAVE A WEALTH OF KNOWLEDGE OF THE SPECIES IN THAT AREA AND SITTING DOWN AT THE TABLE AND DISCUSSING THE POTENTIAL IMPACTS ON THAT PROJECT AND REALLY HOW WE SHOULD FOCUS AND HONE IN ON THOSE SPECIES AND DEVELOP THE TIER THREE STUDIES IS EXTREMELY IMPORTANT BECAUSE YOU MAY NOT HAVE ALL THE FUNDING TO A LAUNDRY LIST OF STUDIES AND TRY TO DO THE STUDIES THAT ARE REALLY GOING TO GIVE YOU THE RESULTS THAT YOU NEED IN ORDER TO MOVE THE PROJECT TO THE NEXT TIER AND I THINK THAT'S THE MOST IMPORTANT.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY.

I THINK THAT IS AN IMPORTANT ELEMENT AS WELL AND WHAT I THINK IS INTERESTING THAT YOU BROUGHT UP IS AGAIN COMMUNICATION. EARLY COMMUNICATION AND FREQUENT COMMUNICATION.

WE HAVE THE COMMUNICATION PROTOCOL IN THE GUIDELINES THAT WE CAN USE AND THAT HELPS TO LAY OUT WHAT DEVELOPERS CAN BRING TO THE TABLE AND WHEN FISH AND WILDLIFE SERVICE CAN BRING TO THE TABLE SO WE BOTH UNDERSTAND WHAT WE NEED TO PROVIDE AND WHAT WE ARE RESPONSIBLE FOR AS WE ALL WORK THROUGH THE TIERED APPROACH AND THE GUIDELINES. I THINK AT THIS POINT IN TIME WE HAVE A FEW QUESTIONS FROM OUR AUDIENCE.

SO WHAT I WOULD LIKE TO DO IS TAKE A LOOK AT THESE QUESTIONS WE HAVE RECEIVED AND AGAIN IF YOU HAVE ANY QUESTIONS COMMENTS, PLEASE TYPE THEM INTO THAT CHAT BOX AND CLICK SAY AND WE WILL GET THEM IN THE STUDIOS.

SO WE HAVE A QUESTION ABOUT TIER ONE AND TIER TWO.

DOES THE FISH AND WILDLIFE SERVICE HAVE SCREENING GUIDELINES FOR THE BOOTS ON THE GROUND SURVEY?

AND THAT IS A VERY GOOD QUESTION.

WE DON'T NECESSARILY HAVE SCREENING GUIDELINES FOR ALL OF THE SURVEYS THAT WE MENTIONED IN THE WIND ENERGY GUIDELINES.

HOWEVER, WHEN WE GO TO FEDERALLY LISTED SPECIES, WE OFTEN DO HAVE VERY SPECIFIC SURVEY METHODOLOGIES ALREADY OUTLINED THAT WE EXPECT PEOPLE TO FOLLOW AND THOSE GUIDELINES ARE NOT FOLLOWED THEN WE MAY HAVE SOME ISSUES ABOUT THE QUALITY OF THAT SURVEY THAT IS CONDUCTED.

SO FOR FEDERALLY LISTED SPECIES WE DO HAVE VERY SPECIFIC SURVEY METHODOLOGIES.

FOR SOME SPECIES IN GENERAL UNLISTED BATS ARE MIGRATORY BIRDS, WE DO NOT HAVE OFFICIAL SURVEYS THAT WE CONDUCT. WE DO HAVE OFFICIAL GUIDELINES WITH THE EAGLES TO THE EAGLE CONSERVATION PLAN GUIDANCE BUT WE WILL TALK ABOUT THAT DURING ANOTHER BROADCAST.

>>: IF I MIGHT CHIME IN COLLABORATIVELY THEY PUT TOGETHER A METRIC DOCUMENT THAT ACTUALLY DOES TALK ABOUT A LOT OF PRE- AND POST- CONSTRUCTION SURVEY SO THERE'S A DEARTH OF INFORMATION OUT THERE ABOUT HOW TO DO THINGS NOT TO MENTION A FAIRLY LIMITED GROUP OF CONTRACTORS THAT HAVE SORT OF MADE THE WIND ENERGY RESOURCE A LARGE PART OF THEIR BUSINESS MODEL AND HAVE INCREDIBLY KNOWLEDGEABLE BIOLOGISTS AND STATISTICIANS AND SO FORTH THAT THEY REPLICATE THESE METHODOLOGIES AND I THINK THAT ONE FAIRLY CONSISTENT CONCERN THAT WE HEAR A LOT WHICH I THINK PROBABLY WARRANTS MORE ATTENTION IS THAT STANDARDIZATION OF THE METHODOLOGY. BUT IT HAS BEEN FUNDAMENTALLY ABOUT TEN YEARS NOW OF MODERN WIND FARM DEVELOPMENT AND THOSE METHODOLOGIES ARE BECOMING MORE AND MORE STANDARDIZED.

WE ARE SORT OF IN THE PROCESS OF REFINING FATALITY ESTIMATING

AND THINGS LIKE THAT SEEM TO BE THE TOPIC IN THE ACADEMIC CIRCLES SO THERE'S A LOT OF INFORMATION OUT THERE.

>>CHRISTY JOHNSON-HUGHES: THAT IS A REALLY GOOD POINT AND CERTAINLY THE NATIONAL WIND COORDINATING COLLABORATING DOCUMENT IS A VERY IMPORTANT TOOL FOR SURVEY METHODOLOGIES.

WE TALKED ABOUT THAT EARLIER, TABER AND I DID IN THE FIRST SEGMENT OF THE BROADCAST.

SO YOU'RE ABSOLUTELY RIGHT THERE ARE A VARIETY OF REFERENCES OUT THERE THAT HAVE BEEN COMPILED BY KNOWLEDGEABLE SOURCES AND THEY ARE FAIRLY RELIABLE AND THEY ARE BECOMING VERY CONSISTENT.

YOU'RE ABSOLUTELY RIGHT ABOUT THAT.

I WOULD LIKE TO MOVE ONTO ANOTHER QUESTION, WOULD WE USE THE SAME METHODOLOGY FOR PLANNING AND DEVELOPMENT OF A LARGE OFFICE BUILDING?

AND EVEN THOUGH WE ARE TALKING ABOUT WIND ENERGY WE ARE FOCUSING ON WIND ENERGY AND WILDLIFE IN THIS DISCUSSION.

LET'S TAKE THAT TO THE TIERED APPROACH AND TABER, AS WE TALK ABOUT THE TIERED APPROACH DO YOU THINK WE CAN APPLY THE TIERED APPROACH TO ANY OTHER SORT OF DEVELOPMENT?

>>TABER ALLISON: I THINK CONCEPTUALLY THE FRAMEWORK AND WHAT IT REPRESENTS AND ADAPTIVE APPROACH FOR DECISION-MAKING COULD BE APPLIED IN A LOT OF DIFFERENT SITUATIONS LIKE INSTRUCTIONS OF A FACILITY.

SO THE SHORT ANSWER IS THERE IS AN ELEMENT THAT CAN BE REPLICATED OBVIOUSLY THE WIND ENERGY GUIDELINES ARE DEVELOPED SPECIFICALLY FOR WIND ENERGY AND YOU WOULD HAVE TO -- YOU WERE JUST TALKING ABOUT TAKING THE FRAMEWORK AND IT COULD BE ADAPTED TO OTHER KINDS OF DEVELOPMENT.

>>CHRISTY JOHNSON-HUGHES: OKAY, THANK YOU.

AND THAT MAKES SENSE BECAUSE IT IS, IT IS REALLY JUST A REASONED WAY OF WORKING THROUGH THE ISSUE AND DEFINING RISK.

SO ANOTHER QUESTION.

ARE DATABASES AND OTHER TOOLS INCLUDED IN THE GUIDELINE?

AND WE DO HAVE A LIMITED LIST OF DATABASES.

WE ACTUALLY HAVE MORE ONLINE RECOGNIZING THAT THIS IS AN EVER EVOLVING FIELD BUT WE HAVE A COUPLE OF OTHER DATABASES.

I KNOW THE AMERICAN WIND WILDLIFE INSTITUTE HAS A DATABASE. WE TALKED ABOUT ONE OF COURSE THE LANDSCAPE ASSESSMENT TOOL.

AND WE HAVE THE STATE DATABASES.

SO THERE ARE A VARIETY OF DATABASES OUT THERE THAT CAN BE USED.

WE REALIZE THAT ONCE YOU HAVE A PUBLISHED DOCUMENT IT IS VERY DIFFICULT TO UPDATE THAT PARTICULAR LIST.

SO ONLINE WE HAVE MORE INFORMATION ABOUT THAT.

ALL RIGHT TO BAT SURVEYS COME IN TO TIER THREE STUDIES?

>>: DEFINITELY.

>>CHRISTY JOHNSON-HUGHES: JIM.

>>JIM LINDSAY: I CAN FEEL THAT THAT.

AGAIN IN TIER TWO, YOU ARE LOOKING AT IS THERE POTENTIAL FOR RISK FOR BATS.

AND THE ANSWER MIGHT BE NO BASED ON YOUR LITERATURE SEARCH AND YOUR HABITAT MAPPING, THE VARIOUS DATABASES THAT YOU CAN MINE WITHOUT HAVING TO GO TO THE FIELD.

AND THEN OF COURSE IF THE ANSWER MAYBE YES, THE DEATH WARRANT MORE FOCUSED.

AND THERE ARE SEVERAL LEVELS OF FOCUS STUDY THAT YOU CAN CONDUCT.

IT COULD BE AND AGAIN I SPOKE EARLIER IT MIGHT JUST BE I NEED SOME LEVEL OF ACTIVITY WHICH YOU WOULD DO BY MONITORING ACOUSTICALLY YOU WILL HANG THINGS AND RECORD THAT CAUSING COME UP WITH SOME METRIC OF CALLS OR BAT PASSES PER UNIT EFFORTS.

BUT AGAIN YOU DON'T KNOW IF YOU HAVE RECORDED ONE THAT TEN TIMES OR TEN BATS ONE TIME.

SO THAT IS ONE OF THE FLAWS IN ACOUSTICAL MONITORING.

IF YOU FIND YOURSELF IN ENDANGERED SPECIES ACT LISTED SPECIES, YOU WOULD PROBABLY ARE GOING TO WANT TO GO TO A MUCH FINER LEVEL OF DETAIL THAN JUST ACOUSTICAL MONITORING.

YOU MAY WANT TO USE -- COLLECT ACOUSTICAL DATA THAT YOU ARE ABLE TO SCREEN THROUGH SOFTWARE AND DETERMINE YOUR SPECIES COMPOSITION.

TO THE POINT OF I HAVE READ, AND OTHERS AND THAT MAY LEAD TO A FURTHER ITERATION OF FIELD STUDIES WHICH WOULD INCLUDE MS. NETTING UNDER THE INDIANA BAT PROTOCOLS WHICH CAN BE VERY EXPENSIVE BUT GIVES YOU VERY IMPORTANT DATA AS TO WHAT KIND OF RISK YOU ARE LOOKING AT AT THIS PARTICULAR WIND RESOURCE AREA YOU ARE INTERESTED IN.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY.

SO WE HAVE INFORMATION ABOUT PARTICULAR SPECIES IN THE AREA THEN IT IS WORTH THE COST OF THE EFFORT BECAUSE THEN WE'D BETTER DEFINE OUR RISK.

SO ABSOLUTELY.

ABSOLUTELY.

OKAY, SO ANOTHER QUESTION, WHAT STATES ARE WHOOPING CRANE SURVEYS TYPICALLY DONE IN?

>>: TEXAS.

OKLAHOMA, NEBRASKA, IOWA.

>>: IOWA.

[LAUGHING]

[OVERLAPPING SPEAKERS]

>>: AND THE DAKOTAS.

>>CHRISTY JOHNSON-HUGHES: SO REALLY YOU ARE LOOKING IN THE MIGRATION CORRIDOR FOR THE WHOOPING CRANES IN THE SPRING AND THE FALL AND THEY WILL MIGRATE FROM TEXAS UP TO CANADA AND THEN BACK IN THE FALL AND SO DEPENDING ON THE LOCATION OF YOUR WIND PROJECT AND DEALING ONCE AGAIN WITH THE FISH AND WILDLIFE SERVICE'S AND THE STATE AGENCIES, A LOT OF STATES HAVE REALLY GOOD SOUND PROTOCOLS FOR DEVELOPING PROGRAMS FOR WHOOPING CRANES FOR SIDING AND OPERATIONAL CONTROLS FOR WIND FARMS DURING THE MIGRATION SEASON.

SO IF ANYBODY HAS PROJECTS IN THE CORRIDOR, I HIGHLY SUGGEST SPEAKING WITH THE LOCAL EXPERTS IN THE STATES IN THE FIELD OFFICES FOR YOUR PROJECTS ARE APT BECAUSE THEY CAN PROVIDE A LOT OF REALLY GOOD INFORMATION ON WHOOPING CRANES.

>>CHRISTY JOHNSON-HUGHES: THANK YOU.

THAT IS GREAT INFORMATION.

WE HAVE ANOTHER QUESTION WHICH I THINK ALL OF YOU HAVE THOUGHT ABOUT AND WE HAVE TALKED ABOUT AND THAT IS IF A DEVELOPER CHOOSES TO PROCEED WITH THE WIND FARM IN AN INAPPROPRIATE SITE AS THE GUIDELINES ARE VOLUNTARY, WHY COULDN'T THEY?

SO ESSENTIALLY I AM PRESUMING FROM AN INAPPROPRIATE SITE WE ARE TALKING WITH POTENTIAL HIGH RISK TO SPECIES OF CONCERN THAT MAY BE AFFECTED BY THE CONSTRUCTION OPERATION AND MAINTENANCE OF THE FACILITY.

SO ESSENTIALLY WHAT THE GUIDELINES THEY ARE VOLUNTARY.

THEY DON'T STOP ANYBODY FROM BUILDING A WIND FACILITY.

HOWEVER, THERE IS ANOTHER ELEMENT TO THIS WHICH I'M SURE IS A BUSINESS ELEMENT TO THIS NOT JUST A WILDLIFE ELEMENT.

SO JIM, HAVE YOU EVER HAD THIS TYPE OF CONSIDERATION OR DISCUSSION ABOUT DO WE BUILD IN THIS FIGHT KNOWING THERE IS HIGH RISK TO WILDLIFE HERE?

>>JIM LINDSAY: I CAN TELL YOU WE HAVE WALKED AWAY FROM PROJECTS BASED ON INFORMATION WE HAVE LEARNED IN TIER THREE. AND I THINK THE GENERAL ANSWER IS THEY ARE VOLUNTARY SO YES A DEVELOPER COULD DEVELOP IN WHAT MIGHT BE DEEMED AS AN INAPPROPRIATE WIND RESOURCE AREA.

BUT WHAT THESE WIND ENERGY GUIDELINES ARE IDENTIFIED TO IDENTIFY INAPPROPRIATE WIND RESOURCE AREAS.

SO THAT'S MY ANSWER.

>>STU WEBSTER: HISTORICALLY THE MODERN AGE OF WIND ENERGY

DEVELOPMENT HAS NOT REALLY HAD AN INSTITUTIONALIZED BODY OF KNOWLEDGE IF YOU WILL ABOUT RISK.

AND SO THERE HAVE BEEN INSTANCES WHERE PROJECTS HAVE BEEN BUILT THAT WERE EITHER NOT PERCEIVED ARE PERCEIVED TO BE A RISK AND BECAME A RISK IN REALITY AND THANKFULLY THEY ARE FEW AND FAR BETWEEN.

ON THE CONTRARY THERE'S ARE THOSE THAT HAVE BEEN PERCEIVED AS A RISK THAT TURNED OUT NOT TO BE A RISK.

I THINK THAT THE GUIDELINES ARE OFFERING A NEXT-GENERATION, IF YOU WILL OF COLLABORATION WITH NON-INDUSTRY STAKEHOLDERS TO NOT ONLY STANDARDIZED A FEW WELL WHAT THE STUDIES ARE THAT WE SHOULD BE DOING BUT MORE IMPORTANTLY INSTITUTIONALIZE THE KNOWLEDGE WE ARE BUILDING OFF OF SO THAT TO GO BACK TO JIM'S EXAMPLE UNDER TIER THREE, ANOTHER ASPECT OF BEING ABLE TO FOCUS ON SOMETHING IS YOU MAY NOT HAVE TO DO A STUDY THAT ONE YEAR AGO WOULD HAVE BEEN VIEWED AS IMPORTANT FOR THAT PARTICULAR REGION GIVEN WHATEVER ENVIRONMENTAL AFTER REACH YOU WANT TO APPLY.

BUT BECAUSE PREDECESSORS TO THAT DEVELOPER HAD ACCOMPLISH SOME WORK AND INSTITUTIONALIZE THE KNOWLEDGE AND THE COLLABORATION OF THE AGENCY, THE AGENCY KNOWS THIS IS NOT REALLY AN ISSUE.

SO JIM IS RIGHT.

YOU CAN MOVE FORWARD.

THERE IS OBVIOUSLY ALONG WITH THE BENEFIT OF INCREASED KNOWLEDGE, THERE IS ALSO A COST OF DOING SO BECAUSE THERE IS AN INCREASED LEVEL OF EXPECTATION.

I THINK IT WOULD BE VERY NAÏVE OF A COMPANY TO APPROACH THIS FROM THE STANDPOINT OF WE JUST DID NOT KNOW.

HOW COULD YOU NOT KNOW AT THIS POINT GIVEN ALL OF THE WORK WE'VE DONE TOGETHER TO TRY AND COME TO SOME AGAIN A FUNDAMENTAL LEVEL OF EXPECTATION AND UNDERSTANDING AND COMMON LANGUAGE ABOUT WHAT WE SHOULD AND SHOULD NOT DO?

>>JIM LINDSAY: AND IN TIER TWO YOU ARE STARTING TO LEARN ABOUT MITIGATING YOUR RISKS, YOUR IMPACTS IN TIER THREE. AND YOU MAY FIND THAT YOU CAN MITIGATE UNAVOIDABLE IMPACTS BUT YOU CAN'T AFFORD IT AND THAT IT RENDERS THE PROJECT AN ECONOMIC.

>>MARY CONNOR: THE NICE THING ABOUT THE TIERED APPROACH IS IF YOU FOLLOW THAT YOU'RE GAINING MORE INFORMATION FOR EACH TIER AND BEFORE COMPANY IS ACTUALLY STARTING THE CONSTRUCTION PROJECTS YOU HAVE A LOT OF INFORMATION AT HAND SO YOU CAN MAKE A GOOD DECISION IF THAT PROJECT SHOULD GO FORWARD OR NOT OR IF THERE IS A SPECIFIC RISK ASSOCIATED WITH IT.

SO BY FOLLOWING THE VOLUNTARY GUIDELINES IT FOLLOWS A GOOD PROCESS FOR YOU TO MAKE THAT DECISION.
AND TO AVOID THAT.

>>CHRISTY JOHNSON-HUGHES: OKAY.

THANK YOU I THINK THAT ANSWER THAT VERY WELL.

TO MOVE ONTO ANOTHER QUESTION, DO YOU THINK THESE GUIDELINES CAN BE USED FOR OFFSHORE WIND FARMS?

THESE GUIDELINES WERE DELIBERATELY DEVELOPED FOR TERRESTRIAL LAND BASED WIND FACILITIES.

THEY ARE NOT DESIGNED FOR OFFSHORE WIND.

THERE ARE A VARIETY OF ADDITIONAL CONSIDERATIONS FOR OFFSHORE WIND, ESPECIALLY ONCE YOU GET INTO STATE WATERS AND BEYOND THAT INTO FEDERAL WATERS.

SO THESE GUIDELINES ARE NOT DESIGNED TO APPLY FOR OFFSHORE WIND.

AT THIS POINT.

>>: BUT TWO TABER'S POINT EARLIER, THE FRAMEWORK EXISTS AND IS VIABLE AND YOU CAN APPLY IT ACROSS THE BOARD.

AND I THINK IT WOULD BE -- IT WOULD BE SOMEWHAT SURPRISING IF THE FISH AND WILDLIFE SERVICE AND LAND MANAGERS STATE AGENCIES WOULD APPRECIATE AT THE SNAP OF A FINGER TO HAVE SIMILAR GUIDELINES FOR ALL OF THE LAND USE PRESSURES THAT ARE OUT THERE THAT THESE SPECIES SOME OF WHICH HAVE BEEN SUFFERING FROM FOR DECADES.

SO MUCH TO THAT POINT, OFFSHORE CAN BE APPLIED TO THE FRAMEWORK JUST LIKE OTHER INDUSTRIES CAN.

>>CHRISTY JOHNSON-HUGHES: YOU MAKE A VERY GOOD POINT. ABSOLUTELY.

SO TO WHAT EXTENT DO THESE GUIDELINES DIFFER FOR LARGE SCALE VERSUS SINGLE TURBINE PROJECTS?

AND I SEE WE ARE ALL LOOKING AT ME SO I CAN ANSWER THAT.

[LAUGHING]

IT IS TRUE, WHEN WE WERE DEVELOPING THE WIND ENERGY GUIDELINES WE WERE THINKING AT THE LARGER SCALE UTILITY SCALE. SO MULTIPLE TURBINES, LARGE TURBINES CREATING ELECTRICITY THAT WOULD THEN BE FED INTO THE GRID AND WE REALIZED IN THE DEVELOPMENT OF THE GUIDELINE THAT WE ALSO HAD TO TALK ABOUT SMALLER OPPORTUNITIES, DISTRIBUTED WIND, COMMUNITY WINDS, FARMERS WISH TO PUT WIND TURBINES ONTO THEIR PROPERTY AND THE IDEA IS THAT ANYBODY CAN USE THE TIERED APPROACH HOWEVER AGAIN YOU SHOULD BE PUTTING IN AS MUCH EFFORT AS THERE IS RISK. THEY MUST BE COMMENSURATE OR AT LEAST THAT IS THE IDEA IN THE TIERED APPROACH.

SO IF YOU HAVE A SINGLE TURBINE THAT IS GOING UP AND THERE MAY BE MONTHS LAST RISK INVOLVED.

-- MUCH LESS RISK INVOLVED.

SO COMPANY MAY ONLY GO THROUGH TIER ONE AND TIER TWO AND NEVER GET TO TIER THREE BECAUSE THEY USE A PUBLICLY ACCESSIBLE DATABASE.

THEY MAY EVEN TALK TO FISH AND WILDLIFE SERVICE OR THE STATE WILDLIFE AGENCY AND THEN FIND THERE IS REALLY NOTCH BUT -- NOT MUCH CONCERN OUT THERE.

YOU MAY HAVE THE ODD TURBINE THAT SOMEONE WANTS TO PUT, RIGHT NEXT TO A VERY SENSITIVE WILDLIFE AREA.

AND THEN SOMEONE SHOULD BE NOTIFIED OF THAT AND WE WILL TAKE IT FROM THERE.

BUT IN GENERAL THE GUIDELINES WERE DESIGNED FOR UTILITY SCALE BUT ANYONE CAN LOOK AT TIERS ONE AND TWO AND USE THAT INFORMATION.

>>TABER ALLISON: AND I MIGHT JUST ADD THAT WERE THE GUIDELINES START IS WITH LOCATION.

AND WHETHER YOU ARE A SINGLE TURBINE PROJECT OR A UTILITY SCALE PROJECTS, LOCATION DOES MATTER.

AND SO WHEN YOU ARE ASSESSING DISTRIBUTED WIND PROJECTS YOU DO NEED TO THINK ABOUT WHERE YOU ARE PUTTING THIS.

BUT AS YOU SAY, AFTER THAT FOR EXAMPLE, IT MAY TAKE A PROJECT THAT IS IN A BUILT-UP AREA THAT YOU HAVE ADDRESSED THAT QUESTION IMMEDIATELY.

AND THEN SOME OF THESE OTHER CONSIDERATIONS MAY NOT BE AN ISSUE.

BUT I AM FAMILIAR WITH SINGLE TURBINE PROJECTS THAT ARE BUILT ALONG COASTLINES NEAR ENDANGERED SPECIES CONGREGATIONS THAT COULD POTENTIALLY POSE A RISK.

AND SO IN MANY CASES THAT OUGHT TO BE EVALUATED.

>>CHRISTY JOHNSON-HUGHES: I THINK YOU'RE ABSOLUTELY RIGHT. THANK YOU FOR THAT PERFECT HAITIAN.

DOES WIND ENERGY SITING INCLUDE ROADS, POWER LINES, INFRASTRUCTURE ETC.?

AND JIM WHY DON'T YOU ANSWER THAT ONE.

>>JIM LINDSAY: YES.

THE FIVE THE ANSWER IS YES.

AND WE DO DESCRIBE THAT IN THE WIND ENERGY GUIDELINES.

WE ACTUALLY HAVE A GLOSSARY AND PROJECT AREA IS CLEARLY DEFINED IN THERE AND IT DOES INCLUDE ACCESS ROADS.

>>JIM LINDSAY: COLLECTION LINES, TRANSFORMERS, SUBSTATIONS, INTERCONNECTED -- YES IT IS BASICALLY A CRADLE TO GRAVE WIND ENERGY GUIDELINES.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY.

NOW THE NEXT QUESTION IS A LITTLE MORE COMPLEX AND REALLY CAN INVOLVE A LONG DISCUSSION WITH OUR SOLICITORS AND LAW

ENFORCEMENT BUT WE WILL TOUCH ON IT BRIEFLY HEAR.
IF A DEVELOPER IS PROSECUTED UNDER THE ACT, I WOULD PRESUME
THAT THE ENDANGERED SPECIES ACT OR THE EAGLE ACT, IF THEY
DON'T COMPLY WITH THE VOLUNTARY GUIDELINES CAN AREN'T THEY
REALLY MANDATORY?

ACTUALLY, THE GUIDELINES THEMSELVES ARE VOLUNTARY.
THEY DO NOT HAVE TO BE FOLLOWED AT ALL.

AND THOSE LAWS STAND WITH OR WITHOUT THE GUIDELINES.
THEY WERE THERE BEFORE THE GUIDELINES.

THE GAS IT IS UP TO THE DEVELOPERS AND THE OPERATORS TO
COMPLY WITH FEDERAL LAW AS IT IS FOR EVERYBODY.

BUT THE GUIDELINES THEMSELVES ARE NOT MANDATORY.

THEY JUST PROVIDE AN APPROACH FOR CONSIDERING RISK IN A
SEQUENTIAL PROCESS AND WE PROMOTE COMMUNICATION BETWEEN
THE SERVICE AND THE DEVELOPER AND OPERATOR.

SO DID ANYONE ELSE WANT TO RESPOND TO THAT PARTICULAR
QUESTION?

>>STU WEBSTER: YOU COULD EFFECTIVELY ARGUE THAT'S THE CASE
FOR JUST ABOUT EVERY TYPE OF ACTIVITY THAT GOES ON OUT THERE.
IT'S VIRTUALLY AN IMPOSSIBLE LAW TO NOT VIOLATE ON A PERSONAL
LEVEL LET ALONE ON A CORPORATION OR GOVERNMENT LEVEL.

SO IT IS A BIT OF -- IT IS A BIT OF A CHALLENGE BECAUSE IT DOES SEEM
TO BE A FEW WEALTHY CRUST THAT WE BEAR AS OPPOSED TO OTHER
INDUSTRIES THAT HAVE MUCH MORE SHALL WE SAY HUMAN HEALTH
IMPACTS AIR POLLUTION, WATER POLLUTION AND WE DON'T HAVE THAT
SO WE DON'T FIT NEATLY INTO THE REGULATORY STRUCTURE THAT
WE'VE HAD IN PLACE IN THIS COUNTRY FOR 60 YEARS.

INSTEAD WE ARE THE OUTLIER.

AND SO PEOPLE GET VERY HUNG UP AND CONCERNED ABOUT FEDERAL
PERMITS AND SO ON AND SO FORTH.

IT'S ARGUABLE THAT WE ARE NOT FLYING UNDER THE RADAR AND YET
WE DON'T REALLY HAVE THOSE SAME HUMAN HEALTH IMPACTS THAT I
THINK GALVANIZE OUR SOCIETY TO HAVE ENVIRONMENTAL LAWS IN
THE FIRST PLACE AND WILDLIFE LAWS SORT OF CARRY THEMSELVES
WITH COATTAILS AND SO THIS HAS BEEN AN UNUSUAL AND AT TIMES
VERY UNCOMFORTABLE APPROACH THAT WE ARE TAKING WHERE WE
ARE TRYING TO CONFRONT IF YOU WILL THE LEGAL NATURE OF THESE
LAWS WHILE AT THE SAME TIME BALANCING THE PERCEIVED AND AGAIN
AS I SAID EARLIER, REAL BENEFITS THAT RENEWABLE ENERGY IS
BRINGING TO THE SAME SPECIES THAT ARE PROTECTED BY THESE
LAWS.

>>CHRISTY JOHNSON-HUGHES: I THINK THAT IS A GOOD POINT.
AND SOMETHING THAT YOU CAN HAVE A LOT OF DISCUSSION ABOUT
WITH THE FIELD OFFICE AND WE CAN SPEND HOURS TALKING ABOUT
BANDIT -- VOLUNTARY AND MANDATORY, BUT THE GUIDELINES ARE

VOLUNTARY IN AND OF THEMSELVES.

THE EAGLE ACT.

AT THIS POINT IN TIME WE WOULD LIKE TO TAKE A TEN-MINUTE BREAK. AND THEN WHEN WE COME BACK FROM THE BREAK WE ARE GOING TO STUDY A SPECIFIC PROJECT, AN ACTUAL PROJECT THAT HAPPENED AND A CASE STUDY AND THEN COME BACK AND TALK A BIT MORE ABOUT TIERS FOUR AND FIVE WITH OUR ROUND TABLE.

THANK YOU.

(TEN-MINUTE BREAK).

>>CHRISTY JOHNSON-HUGHES: WELCOME BACK TO THE WIND ENERGY BROADCAST AND OUR DISCUSSION OF THE WIND ENERGY GUIDELINES AND THE TIERED APPROACH.

WE ARE GOING TO MOVE ON WITH A STUDY THAT IS BEING BROUGHT TO YOU BY ONE OF THE FISH AND WILDLIFE SERVICE BIOLOGISTS IN THE FIELD JEFF EVERETT.

YOU WILL BE PRESENTING A PARTICULAR PROJECT TALKING ABOUT TIERS ONE AND TWO AND HOW THAT RELATES TO SOME OF THE TIER THREE STUDIES.

JEFF AS I SAID IS THAT THE U.S. FISH AND WILDLIFE SERVICE AND HE IS A WILDLIFE BIOLOGIST IN PORTLAND OREGON WHERE HE SPECIALIZES IN RENEWABLE ENERGY PROJECT DEVELOPMENT AND COORDINATION. WHAT WE WOULD LIKE TO DO IS BRING UP THE CASE STUDY AND WE WILL MOVE ON TO JEFF'S VIDEO.

>>JEFF EVERETT: AT THIS POINT WE WILL TALK A LITTLE BIT MORE ABOUT THE ROOT -- REAL WORLD APPLICATION.

AT THIS POINT THE PROJECT DEVELOPERS AND THE SERVICE HAS BEEN WORKING TOGETHER TO THE FIRST TWO TIERS.

WE KNOW A LOT ABOUT WHAT THE HABITAT AND THEN AROUND THE PROJECT AREA LOOKS LIKE AND WHAT SOME OF THE RESOURCE VALUES ARE.

WE KNOW WE HAVE EXPANSES OF SAGEBRUSH AND SAGEBRUSH SPECIES AS WELL AS A CONCENTRATION OF MIGRATING RAPTORS IN THE FALL.

WE'VE ALSO IDENTIFIED SEVERAL OPPORTUNITIES TO AVOID AND MINIMIZE RISK TO WILDLIFE THAT'S BEEN IDENTIFIED IN AND AROUND THE IMMEDIATE PROJECT AREA.

ONE OF THE WAYS WE IDENTIFIED THESE OPPORTUNITIES IS TO THE RECOMMENDED USE OF POINT COUNT IN AND AROUND THE PROJECT AREAS IN SOUTH.

POINT COUNTS ARE A RECOMMENDED METHODOLOGY THAT THE SERVICE USES TO RECORD BIRD OBSERVATIONS AROUND A CIRCULAR PLOTS OVER A CERTAIN AMOUNT OF TIME.

IN THIS SLIDE, THE PROPOSED PROJECT BOUNDARIES OUTLINED IN GREEN.

THE ASTERISKS REPRESENT PROPOSED TURBINE LOCATIONS AND AS

YOU CAN SEE FROM THE MAP, THEY ARE IN VERY CLOSE PROXIMITY TO THE RIDGE LINE.

ALL ALONG THE RIDGE LINE THERE ARE EXISTING AND HISTORIC NEST LOCATIONS INCLUDING INCIDENTAL NESTS, UNKNOWN FALCON NESTS, AND A VARIETY OF OTHER RAPTOR RESOURCES.

THIS BRIDGE, RUNNING ROUGHLY NORTH TO SOUTH ALSO REPRESENTS A SIGNIFICANT FALL MIGRATION CORRIDOR FOR RAPTORS.

I WOULD LIKE TO TRANSITION TO A GOOGLE EARTH IMAGE OF THE PROJECT AREA TO GIVE YOU SOME PERSPECTIVE ON WHAT THIS LANDSCAPE LOOKS LIKE.

THIS IS THE RIDGE RUNNING ROUGHLY NORTH TO SOUTH.

AND THIS ELEVATION DIFFERENCE BETWEEN THE TOP OF THE RIDGE AND THE VALLEY FLOW BELOW IS 2500 FEET.

THE MIGRATING RAPTORS, ROUGHLY DURING THE FALL MIGRATION FROM NORTH TO SOUTH USING THE WIND RESOURCES THAT COME OFF THE TOP OF THE CLIFF.

ALONG THE CLIFF WE ALSO OF NESTING RAPTORS AND A VARIETY OF DIFFERENT OR SPECIES.

THE PROJECT DEVELOPER DURING TIERS ONE AND TIER TWO TO PUT A TOWER ROUGHLY RIGHT ABOUT HERE ON THE EDGE OF THE CLIFF TO CAPTURE AND CHARACTERIZE THE HIGH-VALUE WIND RESOURCES THAT ARE ALL THROUGHOUT THIS BRIDGE.

SO THIS GRAPH ALSO KNOWN AS A WIND ROSE IS FROM TOWER TWO DATA COLLECTED ALONG THE EDGE OF THE RIDGE.

WHAT I WOULD LIKE TO DRAW YOUR ATTENTION TO IS THE GREEN SPIKE AT 30 DEGREES OR ROUGHLY 2:00 O'CLOCK.

THIS SPIKE REPRESENTS A RELATIVELY RARE EVENT WHEN EITHER WEST AND WEST COLD LOW PRESSURE SYSTEMS MOVE ACROSS THE LANDSCAPE FROM THE WEST TO THE EAST AND HAVE A TENDENCY TO SHIFT WIND DIRECTION 180 DEGREES BLOWING INTO THE TURBINES FROM THE EAST.

THIS REPRESENTS A THREAT TO THE MIGRATING RAPTORS COMING FROM THE NORTH ALONG THE RIDGE.

THIS GRAPH ALSO REPRESENTS WHEN THESE LOW PRESSURE SYSTEMS TAKE PLACE IS A RELATIVELY RARE EVENT AND RATHER THAN PROPOSE THAT THE PROJECT DEVELOPER SHUT DOWN THE TURBINES ALONG THE RIDGE FOR THE ENTIRE FALL MIGRATION WE WERE ABLE TO CHARACTERIZE THAT THESE EVENTS ONLY HAPPEN FOR A FEW HOURS OR IN FREQUENTLY OVER THE COURSE OF THE ENTIRE FALL MIGRATION SEASON.

SO WORKING COLLABORATIVELY WITH THE PROJECT DEVELOPER WE ESTABLISH A BANK OF CURTAILMENT POWERS WHICH CAN BE SELECTIVELY APPLIED TO THE HIGH RISK TURBINES DURING THESE RELATIVELY RARE EVENT EVENTS AS NEEDED.

NOT ALL WIND ENERGY PROJECTS ARE THE SAME.

EACH ONE OFFERS DIFFERENT CHALLENGES FROM A NATIONAL

RESOURCE PERSPECTIVE AND DIFFERENT OPPORTUNITIES TO CUSTOMIZE AVOIDANCE AND MINIMIZATION MEASURES. IN SUMMARY, THERE IS NO COOKIE-CUTTER APPROACH TO AVOIDANCE AND MINIMIZATION.

EARLY INVOLVEMENT IS CRITICAL FOR BOTH THE WIND ENERGY DEVELOPERS AS WELL AS THE SERVICE AND THE OTHER NATURAL RESOURCE INTERESTS.

MOST CONSERVATION BANG FOR THE BUCK IS AN AVOIDANCE, WHICH MEANS CAREFUL SITING.

THE TIERED APPROACH FOR THE WIND ENERGY GUIDELINE IS MEANT TO BE AN INTERACTIVE PROCESS FOR THE PROJECT DEVELOPMENT AND THE SERVICE ESTABLISH FREQUENT AND OPEN COMMUNICATION THAT RESULT IN A SUCCESSFULLY AND RESPONSIBLY CITED PROJECT.

>>CHRISTY JOHNSON-HUGHES: THANK YOU, JEFF.

THAT WAS VERY USEFUL AND I THINK A REALLY GOOD EXPLANATION OF A SPECIFIC PROJECT AND HOW THIS WORKS FOR A SPECIFIC PROJECT. SO JEFF, I UNDERSTAND THAT YOU ARE ON THE PHONE LIVE FROM PORTLAND, OREGON.

ARE YOU THERE?

>>JEFF EVERETT: GOOD AFTERNOON EVERYBODY.

BESIDE JEFF IS HERE WITH US AND WE HAVE AN OPPORTUNITY TO ASK JEFF QUESTIONS ABOUT THE PROJECT AND JEFF, ONE OF THE THINGS THAT I NOTICED ABOUT THIS PARTICULAR PROJECT THAT THERE WAS A LOT OF INTERACTION BETWEEN THE FISH BETWEEN THE FISH AND WILDLIFE SERVICE AND THE PROJECT DEVELOPER AND IT SOUNDS LIKE YOU COVERED A LOT OF MATERIAL AND INFORMATION THAT I CERTAINLY DON'T USUALLY SEE WHAT REVIEWING A PROJECT. HOW DID THAT WORK?

HOW ARE YOU ABLE TO GET THEIR AND HOW DOES THAT COME ABOUT? THAT TYPE OF COMMUNICATION?

>>JEFF EVERETT: SURE WITH THIS PARTICULAR PROJECT [INAUDIBLE] THE COMPANY APPROACHED THE SERVICE AT THE SAME TIME THEY WERE BEGINNING THEIR OWN TIER ONE E. VALUATION SO WHEN IT CAME TIME TO LOOK AT THESE RARE WHETHER EVENTS IN THE PRESENTATION, BY THAT POINT WE HAD THREE YEARS OF PRE- PROJECT SURVEY DATA AVAILABLE TO HELP US WITH THESE APPROACHES.

A LOT OF THAT WAS INFORMATION THE COMPANY WAS GATHERING. BECAUSE WE WERE WORKING COLLABORATIVELY WITH THEM VERY FEW IN THE PROCESS WE WERE ABLE TO MAXIMIZE THE PRE- PROJECT SURVEY AND EFFICIENCY AND TIERED IN USING THE TIER APPROACH TO GET THE RIGHT INFORMATION AT THE RIGHT TIME.

ALSO WITH THIS PARTICULAR PROJECT THERE IS A LAND MASS SO BY APPLYING FOR SEVERAL DIFFERENT PERMIT TO THE BLM THE SERVICE WAS BROUGHT IN INTO THE PROJECTS DEVELOPMENT VERY EARLY ON.

>>CHRISTY JOHNSON-HUGHES: THANK YOU.
THERE IS ANOTHER QUESTION THAT WE HAVE FOR YOU JEFF.
HOW DID THE FISH AND WILDLIFE SERVICE REQUIRE THE BANK?
WAS THAT VOLUNTARY?

>>JEFF EVERETT: IT WAS DEVELOPED VOLUNTARY.
MOST -- MOST OF THE WAY THAT WE WERE ABLE TO COME UP WITH THE
CONCEPT OF BANKING THE NECESSARY HOURS AND APPLYING THEM
AS NEEDED IN A SELECTIVE MANNER CAME FROM THE
MULTI-PHASE -- MULTIPLE YEARS OF PRE-PROJECT WEATHER
INFORMATION AND SITE-SPECIFIC SURVEYS THAT WE HAD AT OUR
DISPOSAL WHEN IT CAME TIME TO DISCUSS THE MEASURES BEHIND
AVOIDANCE AND MINIMIZATION OF RISK.
AND BASICALLY THIS IS A GOOD EXAMPLE OF AN EXERCISE IN RISK
MANAGEMENT.

AND SO FROM THE MET TOWER INFORMATION WE WERE ABLE TO
CHARACTERIZE HOW OFTEN AND LITERALLY DOWN TO AN AVERAGE OF
HOW MANY HOURS EACH FALL DURING THE FALL MIGRATION SERIES
THAT THESE FALL MIGRATION EVENTS CAME TO THE PROJECT AREA
AND PRESENTED THIS RISK TO THE MIGRANTS COMING DOWN THE
RIDGE LINE.

AND BECAUSE WE HAD THAT HIGH-QUALITY SITE-SPECIFIC
INFORMATION WE WERE ABLE TO APPLY IT IN A CUSTOMIZED WAY SO IT
WAS ACTUALLY AN IDEA THAT THE DEVELOPERS CAME UP WITH
RATHER THAN AS I WAS TALKING ABOUT IN THE PRESENTATION
SHUTTING EVERYTHING DOWN DURING THE ENTIRE MIGRATION SEASON
EVEN IF IT WAS JUST SO SEVEN OR EIGHT HIGH RISK TURBINES ALONG
THE RIDGE.

THAT WOULD NOT WORK FOR ANYBODY SO WE CAME UP WITH A
COLLABORATIVE SOLUTION THAT REALLY TAILORS A SPECIFIC
SOLUTION TO A SPECIFIC PROBLEM.

>>CHRISTY JOHNSON-HUGHES: EXCELLENT.
I THINK THAT IS VERY INTERESTING AND GOES BACK TO WHAT WE
WERE TALKING ABOUT EARLIER ABOUT COMMUNICATION,
COLLABORATION BUT ALSO THE PROBLEM-SOLVING NATURE OF THE
GUIDELINES AND FOCUSING IN ON SPECIFIC ISSUES THAT ARE THE
HIGH-PRIORITY CONCERN AT A SPECIFIC LOCATION.

AND IT'S VERY APPARENT THAT THE MITIGATION WOULD REALLY APPLY
TO THAT PARTICULAR PROJECT AT THAT LOCATION.

WE HAVE ANOTHER QUESTION FOR YOU JEFF.

WHAT ARE EXAMPLES OF OTHER MITIGATION MEASURES THAT CAN BE
APPLIED.

I WILL OPEN THIS UP TO JEFF BUT WE MAY ALSO HAVE SOME INPUT
FROM OUR GUESTS HERE IN THE STUDIO BUT JEFF, WHAT ABOUT
OTHER MITIGATION MEASURES?

>>JEFF EVERETT: THERE'S A WIDE VARIETY OF MITIGATION

MEASURES THAT ARE CONSIDERED MORE OR LESS STANDARD AVOIDANCE AND MINIMIZATION MEASURES THAT ARE SEPARATE FROM ANY SORT OF SPECIFIC CUSTOMIZED OR TAILORED APPROACHES THAT CAN BE DELIVERED TO INDIVIDUAL PROJECTS.

THESE ARE THINGS LIKE HAVING A REASONABLE SPEED LIMIT IN AND AROUND THE PROJECT AREA TO AVOID THE POTENTIAL FOR ROAD KILL WHICH CARCASSES ATTRACT PREDATORS AND THOSE SORTS OF THINGS.

ALSO CERTAIN ANIMAL LIVESTOCK MANAGEMENT THINGS LIKE IF YOU HAVE CONCENTRATIONS DURING CALVING SEASON OR SOMETHING LIKE THAT, SPREADING THE HERD OUT, KEEPING RUBBLE PILES WHICH IS BASICALLY HIGH-QUALITY SKUNK HABITAT AND THOSE TYPES OF THINGS OFF THE LANDSCAPE TO RESUMES THE OPPORTUNITY FOR PREDATION OR BRINGING BIRDS OR OTHER WILDLIFE INTO A POTENTIALLY DANGEROUS SITUATION OR HIGH RISK SITUATION.

>>CHRISTY JOHNSON-HUGHES: THAT SOUNDS SIMILAR TO SOME BEST MANAGEMENT PRACTICES THAT WE HAVE IN THE WIND ENERGY GUIDELINES TOWARD THE BACK OF THE DOCUMENT WE HAVE A LONG LIST OF BEST MANAGEMENT PRACTICES.

ANY OTHERS THAT WE WANT TO ADD TO THE LIST FOR MITIGATION MEASURES?

>>MARY CONNOR: I THINK IT'S IMPORTANT TO NOTE THAT THE BEST MANAGEMENT PRACTICES THAT ARE LOCATED WITHIN THE WIND ENERGY GUIDELINES STARTED WITH THE FEDERAL ADVISORY COMMITTEE AND THEY WERE BROUGHT INTO THE WIND ENERGY GUIDELINES AND ADDITIONAL BMPS WERE ADDED BECAUSE AS WE LEARN MORE ABOUT THE WIND INDUSTRY WE DEVELOP NEW BEST MANAGEMENT PRACTICES AND I'M SURE THEY WILL CONTINUE TO EVOLVE AS WE LEARN MORE AS THE PROCESS GOES FORWARD. BUT THE BEST MANAGEMENT PRACTICES CAN VARY FROM LIMITING YOUR LIGHTING AND YOUR SWITCH YARDS AND ON YOUR TURBINES SO THAT YOU ARE LESS ATTRACTIVE TO INSECTS AND THINGS LIKE THAT AND BIRDS IN THE AREA.

SO THE NICE THING ABOUT THE BMPS IS IT TAKES YOU THROUGH REALLY THE ENTIRE THREE STAGES OF A WIND PROJECT SO IT STARTS IN THE DEVELOPMENT STAGE AND ALSO IN CONSTRUCTION AS WELL AS OPERATIONS AND INCLUDING DECOMMISSIONING.

SO IT IS ALL PHASES SO THERE ARE SOME GOOD BMPS AND I WOULD HIGHLY SUGGEST PEOPLE LOOK AT THOSE.

>>STU WEBSTER: ANOTHER IDEA WOULD BE GIVEN THE STATE OF THE SCIENCE AND THE KNOWLEDGE GAP THAT WE HAVE RESEARCH IS IN MY MIND ONE OF THE BETTER OPPORTUNITIES IF YOU WILL AND IT OBVIOUSLY DOES NOT FIT NEATLY INTO SORT OF THE MITIGATION BOX BUT AS A CONTRIBUTING COMPONENT, IF YOU WILL TO MITIGATION IT IS SORT OF A SELF-SERVING ENDEAVOR BECAUSE IF WE ARE

GENERATING RESEARCH AND COMPELLING THE INDUSTRY TO UNDERTAKE RESEARCH WHETHER IT BE TIER FIVE OR SOME OTHER COMPELLING REASON, YOU ARE BUILDING THAT BODY OF KNOWLEDGE AND YOU ARE NOT NECESSARILY SO INCLINED TO MAKE THE SAME DECISIONS THAT WERE MADE WHEN YOU ARE LESS INFORMED. BOTH AS AN INDUSTRY STAKEHOLDER.

THERE'S A LOT OF QUESTIONS AND UNCERTAINTY FLYING AROUND PROBABLY A CURIOUS METAPHOR BUT ANYWAY THAT IS SOMETHING TO ADDRESS BECAUSE IF YOU DON'T THEN YOU ARE SORT OF LEFT WITH THIS UNCOMFORTABLE DECISION-MAKING PROCESS OF WHETHER TO PROCEED OR NOT TO THE QUESTION WE HAD EARLIER ABOUT IF IT'S AN INAPPROPRIATE SITE, AND THEY MOVE FORWARD ANYWAY, WE HAVE TO DEFINE RESPONSIBLE.

WE HAVE TO DEFINE APPROPRIATE AND INAPPROPRIATE AND RIGHT NOW WE DON'T REALLY HAVE THAT.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY. NOT YET.

THERE IS ANOTHER QUESTION, WHERE IS THE BEST PLACE TO FIND THE BMPS AND MITIGATE MEASURES IN GENERAL WHERE THEY ARE COMPREHENSIVELY LISTED AND KEPT UP TO DATE?

OF COURSE, A STARTING POINT IS CHAPTER 7 IN THE WIND ENERGY GUIDELINES.

THOSE ARE THE BASIC ONES THAT WE HAVE TWO DATES.

HOW EVER FISH AND WILDLIFE SERVICE AND SEVERAL OTHER ENTITIES ARE PUTTING BEST MANAGEMENT PRACTICES ON THE WEB AND VARIOUS WEBSITES.

FISH AND WILDLIFE SERVICE MAINTAINS THE WIND ENERGY WEBSITE AND WE HAVE PUT LIST OF SURVEY METHODOLOGIES AND BEST MANAGEMENT PRACTICES THERE SO WE COULD EASILY UP TO THEM. BUT I UNDERSTAND THAT THERE ARE STATE WEBSITES THAT ALSO HAVE BEST MANAGEMENT PRACTICES INVOLVED.

LET'S GO TO ONE MORE QUESTION FOR JEFF.

WELL THE EXAMPLE DEALT WITH MIGRATING RAPTORS, HOW WOULD YOU MITIGATE THE POTENTIAL TAKE OF THE NESTING RAPTORS, WHICH WOULD INCLUDE DISTURBANCE?

WHAT DO YOU THINK OF THAT JEFF?

>>JEFF EVERETT: WE COULD ATTEMPT TO MITIGATE FOR THAT POTENTIAL TAKE IN TWO WAYS.

THE FIRST THING WE WOULD DO WITH THIS PARTICULAR EXAMPLE WOULD BE TO MONITOR -- BEFORE WE GET TO MONITORING, TO IMPLEMENT BEST MANAGEMENT PRACTICES AROUND THE ACTUAL CONSTRUCTION TO LIMIT THE AMOUNT OF CONSTRUCTION TO THE KNOWN OCCUPIED MASTERING THE HIGHLY SENSITIVE NEST SEASON. THAT WOULD INCLUDE BOUNDARIES ON WHAT KIND OF CONSTRUCTION COULD TAKE PLACE WENT, WHICH NOISE GENERATING ACTIVITIES

COULD TAKE PLACE WENT AND THEN TRY TO BE SENSITIVE TO THE LINE RISK OR THOSE HIGHLY SENSITIVE PERIODS AROUND THE NESTING AND FLEDGING.

THE LAST THING WE WANT TO DO IS HAVE EITHER ABANDONMENT OF A NEST ONCE WE HAVE EGGS OR FLEDGLINGS OR POTENTIALLY HAVE THOSE FLEDGE PREMATURELY.

WE DO HAVE SOME WELL ESTABLISHED PROTOCOLS THAT THE SERVICE USES FOR PERMITTING DISTURBANCE OR OTHER SORTS OF POTENTIAL TAKE IN AND AROUND US MOSTLY AS THEY ARE APPLIED TO BALD EAGLES.

BUT THE BEST MANAGEMENT PRACTICES EXTEND TO SOME EXTENT TO GOLDEN EAGLES AS WELL.

THE OTHER THING WE COULD DO IS FAST-FORWARD A YEAR AFTER CONSTRUCTION, WHEN THE WIND FARM IS UP AND OPERATING. WE HAVE A COUPLE OF SITUATIONS IN THE PACIFIC NORTHWEST WHERE WE HAVE PROJECTS THAT HAVE NESTING RAPTORS ON CLIFF FACES IN SITUATIONS SIMILAR TO WHAT WE PRESENTED IN THE CASE STUDY WHERE OVER A PERIOD OF TIME THE RAPTORS BECOME MORE OR LESS USEFUL TO THE BACKGROUND LEVEL OF DISTURBANCE. IF WE GET IN A SITUATION WHERE THAT DOES NOT APPEAR TO BE AS SMOOTH A PROCESS AS WE WOULD LIKE, WE HAVE HAD PROJECTS WHERE THE SERVICE AND THE DEVELOPERS COLLABORATIVELY MONITOR THE NEST AND MONITOR THE EAGLES FOR SIGNS OF DISTURBANCE.

THERE IS A NUMBER OF BEHAVIORAL THINGS THAT THE EAGLES DO DURING THE HIGHLY SENSITIVE NESTING PERIOD AND WE CAN LITERALLY POST BIOLOGISTS OR OTHER TRAINED OBSERVERS OUT TO KEEP AN EYE ON THINGS.

AND IF THE SITUATION GOT TO THE POINT WHERE THE EAGLES WERE AGITATED, THEY WERE VOCALIZING, THERE WAS A RISK OF ABANDONMENT IN THE JUDGMENT OF THE BIOLOGISTS OUT ON THE SITE WE COULD POTENTIALLY APPLY THAT BANK OF CURTAILMENT HOURS TO THAT HIGH RISK SITUATION AS WELL.

ALL OF THIS IS THINGS THAT ARE CUSTOM TAILORED TO EACH INDIVIDUAL PROJECT.

SO THAT IS SOMETHING THAT USING THIS CASE STUDY IS A GOOD EXAMPLE OF THIS OPEN AND DYNAMIC COLLABORATIVE COMMUNICATION BACK AND FORTH BETWEEN THE SERVICE, THE OTHER PERMITTING AGENCY AND THE DEVELOPER.

WE WOULD SEEK TO ESTABLISH THAT KIND OF COLLABORATIVE PROCESS AROUND A SITUATION LIKE THAT AS WELL.

>>CHRISTY JOHNSON-HUGHES: THANK YOU VERY MUCH JEFF. AND WE APPRECIATE YOUR TIME TODAY AND WE ARE GOING TO RETURN NOW TO THE STUDIO AND RESUME OUR ROUND TABLE DISCUSSION.

SO THANK YOU VERY MUCH FOR JOINING US TODAY JEFF.

>>JEFF EVERETT: MY PLEASURE.

THANK YOU.

>>CHRISTY JOHNSON-HUGHES: ALL RIGHT, WE HAVE TALKED A LOT ABOUT TIER THREE AT THIS POINT IN TIME.

LET'S FOCUS NOW BACK ON TIERS FOUR AND FIVE.

WE HAVE NOT SPENT QUITE AS MUCH TIME ON THEM.

SO TABER, LET'S TALK ABOUT TIER FOR A LITTLE BIT.

WHAT CAN YOU TELL US ABOUT TIER FOUR?

>>TABER ALLISON: TIER FOUR IS THE FIRST CONSTRUCTION TEAR. AND JUST AS YOU PREDICTED IMPACTS IN THE PRECONSTRUCTION TIERS, IN TIER FOR YOU EVALUATE THE PREDICTIONS THAT YOU MADE DURING THE PRECONSTRUCTION.

SO WHETHER OR NOT YOU ARE PREDICTING RISK OF COLLISION OR RISK OF DIRECT OR INDIRECT HABITAT BASED ON FACTS, THIS IS WHAT YOU WOULD BE DOING IN TIER FOR.

SO THE TIER FOUR FOCUSES ON EVALUATION OF YOUR COLLISION RISK PREDICTIONS AND THESE PREDICTIONS TEND TO BE QUALITATIVE, LOW, MODERATE OR HIGH.

AND IN 4 B. YOU ARE EVALUATING HABITAT IMPACTS AND AGAIN AS WE HAVE BEEN SAYING THROUGHOUT BOTH THE DURATION AND INTENSITY OF MONITORING YOU DO DURING TIER FOUR WILL DEPEND ON THE LEVEL OF RISK AND THE LEVEL OF UNCERTAINTY THAT YOU IDENTIFIED IN THE PRECONSTRUCTION ASSESSMENT.

>>CHRISTY JOHNSON-HUGHES: OKAY.

SO IT FOLLOWS RIGHT IN LINE WITH TIER THREE.

MARY, YOUR EXPERIENCES WITH TIER FOUR.

WHAT HAVE THEY BEEN?

WHAT HAVE YOU SEEN?

>>MARY CONNOR: SO JUST LIKE WITH TIER THREE, TIER FOUR STUDIES ARE GOING TO BE DIFFERENT FOR EACH PROJECT.

SO DEPENDING ON THE RESULTS OF THE TIER THREE STUDIES, THE TIER FOUR STUDIES JUST ALONE IN DURATION CAN VARY AS TABER SAID FROM ONE YEAR-2 YEARS DEPENDING ON THE RISK ASSOCIATED WITH THAT SPECIFIC PROJECT.

MAYBE YOU ARE JUST DOING A MONITORING STUDY OR MAYBE YOU ARE ALSO GOING TO DO PRAIRIE CHICKEN SURVEYS AS WELL.

A COMBINATION OF BOTH.

BUT I THINK IT IS IMPORTANT ONCE AGAIN.

I KEEP GOING BACK TO THIS IS COMMUNICATION.

SO IT SHOULD NOT BE A SURPRISE WHEN YOU GET TO THE END OF CONSTRUCTION THAT YOU NEED TO DO A TIER FOR STUDY.

YOU SHOULD ALREADY BE WORKING ON THE PROTOCOL FOR THAT.

YOU SHOULD HAVE YOUR SCOPE OF WORK ESTABLISHED AND I HIGHLY SUGGEST SHOWING THAT SCOPE OF WORK TO THE LOCAL FIELD

OFFICE FOR FISH AND WILDLIFE AS WELL AS THE STATE AGENCY AND GETTING THEIR FEEDBACK ON IT SO THEY ALSO COULD COMMENT ON IT AND ENHANCE THE OVER ALL PROTOCOL AND KNOW EXACTLY WHAT IS GOING TO HAPPEN ON THAT PROJECT.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY.

STU DID YOU WANT TO ADD ANYTHING ABOUT TIER FOUR STUDIES?

>>STU WEBSTER: ONLY THAT LIKE GETTING BACK TO THE SORT OF ANOTHER ONE OF THOSE THINGS WE HAVE BEEN TALKING ABOUT IN TERMS OF BUILDING ON OUR KNOWLEDGE FROM TIER ONE INTO TIER FOUR, TIER FOUR IS BEING INFORMED BY WHAT WE DISCOVER IN TIER THREE.

AND THERE'S ACTUALLY AN ECONOMIC BENEFIT TO THAT IN THAT YOU CAN LOCK IN BUDGET AND SO TO HAVE A BETTER SENSE OF WHEN YOU NEED TO DO TIER FOUR AND WHAT YOU NEED TO DO FOR TIER FOUR IS AN ECONOMIC BENEFIT AS WELL AS A GOOD DUE DILIGENCE EXERCISE.

>>MARY CONNOR: I THINK ANOTHER IMPORTANT ASPECT AND THIS IS SOMETHING WE ARE SEEING MORE AND MORE ESPECIALLY SINCE WIND ENERGY GUIDELINES CAME OUT IN MARCH OF LAST YEAR IS IF THERE'S ANOTHER WIND ENERGY SITE BEING DEVELOPED NEAR AN EXISTING ONE, THE STATE AGENCIES AS WELL AS THE LOCAL FIELD OFFICES FROM U.S. FISH AND WILDLIFE SERVICE KNOW THE DATA THAT THEY HAVE GOTTEN THROUGH TIER THREE AND TIER FOUR STUDIES ON THAT AND THEY ARE ABLE TO COMMUNICATE THAT WITH THE NEWER PROJECTS AND ASSOCIATE SOME OF THAT RISK AND REALLY HONE IN ON THE STUDIES THAT NEED TO BE COMPLETED AS WELL.

>>CHRISTY JOHNSON-HUGHES: SO THAT INFORMATION FEEDS BACK AGAIN INTO OUR UNDERSTANDING AND OUR KNOWLEDGE BUT THAT REALLY IS DEPENDENT UPON REPORTING AS WELL.

SO STU, WHAT ARE YOUR EXPERIENCES WITH REPORTING?

BECAUSE THERE ARE TIMES WHEN THE FISH AND WILDLIFE SERVICE HAS HEARD IN THE PAST THAT IT HAS BEEN DIFFICULT FOR DEVELOPERS TO PROVIDE US WITH POST- CONSTRUCTION REPORTS BECAUSE OF PROPRIETARY INFORMATION BUT ACTUALLY SINCE THE PUBLICATION OF THE WIND ENERGY GUIDELINES WE'VE BEEN GETTING MORE REPORTS SO THAT HAS NOT PROVED OVER TIME.

SO FROM YOUR PERSPECTIVE TELL US A LITTLE BIT MORE ABOUT REPORTING.

>>STU WEBSTER: IT'S GOOD TO HEAR THAT TREND IS RESEARCHING -- REVERSING ITSELF.

BUT THE PROPRIETARY NATURE OF REPORTS IS A LITTLE BIT AT LEAST INITIALLY ILLOGICAL BECAUSE IT'S BIOLOGICAL INFORMATION WHY IS THAT PROPRIETARY.

BUT THE REALITY IS YOU ARE FREELY GIVING THAT INFORMATION IN THE PUBLIC DOMAIN AND YOU ARE ESSENTIALLY INFORMING YOUR COMPETITOR WHO COULD THEN STREAMLINE THEIR LEVEL OF EFFORT

THAT THEY DO AND THERE BY ESSENTIALLY -- POTENTIALLY BE MORE COMPETITIVE THAN YOU ARE AT THE END OF THE DAY.

BUT IT IS NOT REALLY ABOUT THE BIOLOGICAL INFORMATION ITSELF. IT IS THE MENTALITY IF YOU WELL AND IT DOES KIND OF SMACK SOMETIMES OF IRRATIONAL BEHAVIOR WITH THINGS LIKE THAT BUT THAT PROPRIETARY MENTALITY IS CRITICALLY IMPORTANT TO A HEALTHY INDUSTRY AND IT'S INDICATIVE THAT IT IS ROBUST AND IT IS HEALTHY AND IT IS DOING WELL.

IF IT WASN'T THERE WOULD PROBABLY BE SOME OTHER CONCERNS OUT THERE THAT WOULD BE CONSTRAINING.

I THINK WITH TIME THAT WILL ATROPHY AND IT GETS BACK TO THE COMMUNICATIONS AND WHAT THE EXPECTATIONS ARE AND I THINK THERE ARE EXPECTATIONS YET REALIZED.

THERE'S NOT A PRESCRIPTIVE MISS TO GUIDELINES.

THEY ARE VOLUNTARY SO THEY ARE SUBJECT TO SUBJECTIVE ANALYSIS AND ONE-PARTY CAN VIEW THE CONTENT OF A PARAGRAPH ONE WAY AND ANOTHER PARTY CAN VIEW IT AN ENTIRELY DIFFERENT WAY.

I THINK OVER TIME IT WILL BENEFIT THE WIND INDUSTRY AS WELL AS THE INDUSTRY STAKEHOLDERS TO HAVE THAT AUDIO KNOWLEDGE AND DATA, GET INSTITUTIONALIZED INTO THE SERVICE AND THE STATE AGENCIES AND THEREFORE, MORE INFORMED DECISIONS ARE BEING MADE OR CAUTIONS ARE BEING MADE AND UNTIL SUCH TIME BECAUSE I DO BELIEVE THAT WILL BE A WORK IN PROGRESS FOR A COUPLE OF YEARS.

BUT UNTIL SUCH TIME IF THERE'S A VALUE PROPOSITION OF THEIR I WOULD TAKE THE RESEARCH INFORMATION SYSTEM.

>>CHRISTY JOHNSON-HUGHES: BRINGING UP THE RESEARCH INFORMATION SYSTEM, THAT IS A PROJECT OF THE AMERICAN WAY AND WILDLIFE INSTITUTE SO TABER, CAN YOU TELL US A LITTLE BIT MORE ABOUT THE RIF?

>>TABER ALLISON: IS THE RESEARCH INFORMATION SYSTEM OR RIF IS A COMPREHENSIVE WIND WILDLIFE DATABASE THAT IS DEVELOPING TO SECURE CONFIDENTIAL DATA GATHERED DURING THE PROCESS OF OPERATING A WIND FACILITY.

THE IDEA IS WHILE PROTECTING THE CONFIDENTIAL NATURE OF THE DATA WE MAKE THOSE DATA AVAILABLE FOR META-ANALYSIS, IF YOU WILL TO PROVIDE A COW -- POWERFUL TEST OF A VARIETY OF DIFFERENT QUESTIONS THAT ARE OF INTEREST.

SO FOR EXAMPLE, HOW RELIABLE ARE PARTICULAR PRECONSTRUCTION ESTIMATORS IN PREDICTING IMPACT?

CAN WE IDENTIFY WHICH VARIABLES ARE THE BEST AND MOST RELIABLE AT PREDICTING IMPACT?

HOW IMPACT ARE MEASURES TO AVOID AND MINIMIZE IMPACT?

HOW EFFECTIVE ARE BEST MANAGEMENT PRACTICES?

ALL OF THESE THINGS THAT WE HAVE BEEN TALKING ABOUT CAN BENEFIT BY TAKING AND SECURELY STORING AND MAKING ACCESSIBLE THE POTENTIALLY HUNDREDS OF MILLIONS OF DOLLARS WORTH OF DATA THAT HAVE BEEN COLLECTED IN THE COURSE OF DEVELOPING 60,000 MEGAWATTS OF CAPACITY IN THE U.S.

>>CHRISTY JOHNSON-HUGHES: THAT ALSO COMES BACK TO THE DISCUSSION WE HAD EARLIER ABOUT TIER FOUR AND THE USE OF TIER FIVE.

TIER FIVE IS OTHER RESEARCH PROJECTS BUT IT CAN COME INTO PLAY IF WE DISCOVER SOMETHING IN TIER FOUR THAT WE DID NOT ANTICIPATE.

AND SO IF TAKE IS EXCEEDED OR THEIR OTHER IMPACTS WE DID NOT FORESEE, THEN WE COULD ENTER INTO A TIER FIVE TYPE OF SITUATION.

AND TABER, LET'S TALK A LITTLE BIT ABOUT TIER FIVE.

WHAT IS THE BACKGROUND ON TIER FIVE?

>>CHRISTY JOHNSON-HUGHES: TIER FIVE ARE OTHER POST- CONSTRUCTION STUDIES AND AS YOU HAVE DESCRIBED THEY CAN TYPICALLY OCCUR AS A RESULT OF AN EVALUATION OF THE RESULTS FROM TIER FOUR.

YOU MAKE RISK ADDICTIONS ABOUT COLLISION AND WERE THOSE PREDICTIONS OFF?

YOU PREDICTED LOW AND THEY WERE HIGH.

SO YOU MIGHT FIND IT NECESSARY TO DO A TIER FIVE STUDY IN ORDER TO EVALUATE WHAT HAPPENED THAT CAUSED YOUR PREDICTIONS TO BE EXCEEDED OR WHETHER OR NOT THE IMPACTS YOU ARE SEEING THEY HAVE A POPULATION LEVEL EFFECT OR AT LEAST A LOCAL EFFECT.

SO I THINK IN GENERAL WHEN WE TALK ABOUT THE TIERED FRAMEWORK, WE ARE TALKING ABOUT A FRAMEWORK WHERE THE STUDY, THE LEVEL OF STUDY INCREASES WITH AN COMPLEXITY AND DETAIL AS YOU GO TO THE TIERED APPROACH.

IN TIER FIVE WITHIN THIS CONTEXT REPRESENTS THE MOST COMPLEX AND THE MOST DETAILED AND INTENSIVE STUDIES THAT A DEVELOPER MIGHT UNDERTAKE.

AND IN PART AS A RESULT THESE STUDIES WILL BE MUCH LESS FREQUENT THAN TIER FOUR STUDIES.

BUT ALSO TO MAKE A POINT, AT THE RISK OF SOUNDING PEDANTIC, ONE MIGHT TEND TO THINK OF THE TIERED FRAMEWORK GOING 1-5 AS A TEMPORAL SEQUENCE THAT YOU START WITH TIER ONE AND GO THROUGH THE TIERED APPROACH.

ONE STEP AFTER ANOTHER.

BUT THE REAL ESSENCE OF THE TIERED APPROACH IS THAT IT IS A GRADIENT OF PROJECT OR DATA COLLECTION INTENSITY AND COMPLEXITY AND SO IN THE CASE OF TIER FIVE, WERE THIS IS

ILLUSTRATED IS THAT YOU MAY CONDUCT A TIER FIVE STUDY COINCIDENTALLY WITH THE TIER FOUR STUDY BECAUSE OF SOMETHING THAT YOU LEARNED AT THE TIER THREE STAGE.

IN FACT, YOU MAY EVEN DETERMINE IN THE COURSE OF THE TIER THREE STUDY THAT YOU NEED TO INITIATE A TIER FIVE STUDY AT THAT POINT BECAUSE THE BEST WAY TO ADDRESS THAT PARTICULAR QUESTION YOU ARE INTERESTED IN IS THROUGH A DESIGN BEFORE AND AFTER IMPACT CONTROL DESIGN AND THE BEFORE PART OF THAT PROJECT WOULD BE ESTABLISHED IN THE PRECONSTRUCTION PHASE OF A PROJECT.

SO IN THIS SENSE, TIER FIVE MATCHES WITH THE APPROACH THAT WE'VE DESCRIBED IN COLLECTING INFORMATION OF INCREASING COMPLEXITY AND INTENSITY.

>>CHRISTY JOHNSON-HUGHES: OKAY.

SO YOU'VE BROUGHT UP SEVERAL GOOD POINTS BUT ONE OF THEM I WOULD LIKE TO MENTION IS THAT TIER FIVE IS NOT USED ON ALL PROJECTS.

IT IS NOT NECESSARILY USED SEQUENTIALLY BUT THIS IS A RESEARCH EFFORT OFTEN DONE IN PARTNERSHIP WITH OTHERS AND I KNOW THAT'S SEVERAL PROJECTS HAVE BEEN CONDUCTED BY EVERYONE SITTING AROUND THIS TABLE.

JIM, WOULD YOU LIKE TO TALK A LITTLE BIT MORE ABOUT THE TIER FIVE THAT HAS OCCURRED AT YOUR SITES?

>>JIM LINDSAY: I WOULD.

I THINK THE INDUSTRY HAS BEEN SUCCESSFUL AT TIER FIVE EFFORTS. TIER FIVE COLLABORATIVE EFFORTS HAVE BEEN SUCCESSFUL IN THE PAST AND REPRESENT MUCH ABOUT WHAT WE KNOW IN THE LAST TEN YEARS AND I THINK AN EXAMPLE WOULD BE HELPFUL IN AUGUST OF 2003 IN FACT PRIOR TO STARTING THE FALL MIGRATION MONITORING, WIND TECHNICIANS IN THE ATLANTA FACILITY CALLED ME INTO 1030 IN THE MORNING ON AUGUST 19TH AND SAID THERE IS SOMETHING GOING ON WITH BATS.

SO WE MOBILIZED EARLY, TRY TO FIGURE OUT WHAT WAS GOING ON. HIGH LEVELS OF DEBT MORTALITIES THAT WE DID NOT EXPECT.

SO YOU HAVE TO PAY ATTENTION TO THE TIMELINE HERE.

IN FEBRUARY OF 2004 WE FORMED THE ENERGY COOPERATIVE AND HELD A SUMMIT HOSTED BY THE NATIONAL ENERGY LABORATORY IN FLORIDA AND AGAIN IT IS A COLLABORATIVE A MULTI- STAKEHOLDER COLLABORATIVE INVOLVING THE LABORATORY AND THE FISH AND WILDLIFE SERVICE AND THE WIND INDUSTRY IS REPRESENTED BY THE AMERICAN WIND ENERGY ASSOCIATION.

SO WE DEVELOPED A SCOPE OF WORK IN FEBRUARY AND WE GATHERED OUR RESOURCES INCLUDING FUNDING AND WERE CONDUCTING A FULL-BLOWN RESEARCH AND MONITORING IN THE MID

ATLANTIC REGION AND THE RESEARCH BASICALLY HAS CONTINUED UNBROKEN TO DATE.

AND A LOT OF REALLY IMPORTANT INFORMATION WE GAINED FROM THOSE EFFORTS.

INCLUDING MONITORING PROTOCOLS EFFICACY OF DOG SEARCHERS, ACOUSTICAL MONITORING TECHNIQUES AND PRE- AND POST AND JUST REALLY A DEARTH OF KNOWLEDGE.

SO THAT IS JUST ONE EXAMPLE OF SEVERAL VERY SUCCESSFUL TIER FIVE AND INITIATIVES.

>>CHRISTY JOHNSON-HUGHES: THANK YOU, JIM.

I THINK WE COULD SPEND A LOT OF TIME TALKING ABOUT THIS BECAUSE WE'VE HAD A LOT OF EXCITING AND INTERESTING STUDIES COME FORWARD THAT HAVE REALLY MOVED OUR KNOWLEDGE PARTICULARLY OF BATS FORWARD CONSIDERABLY JUST BECAUSE OF THIS CONTRIBUTION AND COLLABORATIVE EFFORT BETWEEN THE FEDERAL AGENCIES AND STATE AGENCIES AND WIND INDUSTRY TO EXPLORE THESE ISSUES AND FACILITIES.

SO LET'S GO AHEAD AND GO BACK TO SOME QUESTIONS FROM THE AUDIENCE.

AND WE HAVE ONE UP HERE.

IS THERE ANY DATA ON THE EFFECTIVENESS OF THE BMPS AND MITIGATION MEASURES?

I UNDER IT STAND THESE BMPS ARE WHAT WE CALL TRIED AND TRUE. THEY'VE BEEN USED AT FACILITIES AND NOT JUST WIND FACILITIES SEVERAL OF THEM ALSO COME FROM OTHER TYPES OF ENERGY BUT DID ANYONE WANT TO ADD ANYTHING TO THAT QUESTION?

>>JIM LINDSAY: I THINK A LOT OF COMPONENTS OF THE BMPS ARE COMMON SENSE AND THINGS THAT THEY BE HAVE BEEN LEARNED IN THE CONSTRUCTION INDUSTRY AND I THINK TRIED AND TRUE IS THE POINT THERE.

>>TABER ALLISON: I THINK JIM REFERENCE THE WORK IN A VARIETY OF TESTING WAYS TO MINIMIZE THAT WHICH HAS BEEN TESTED MULTIPLE TIMES AND HAVE SHOWN EARLY CONSISTENT.

>>CHRISTY JOHNSON-HUGHES: THAT WIND ENERGY COOPERATIVE AND THAT HAS BEEN VERY VALUABLE IT'S BEEN A TREMENDOUS RESOURCE FOR UNDERSTANDING MORE ABOUT THAT. SO WE BELIEVE THAT BMP IS THE BEST MANAGEMENT PRACTICES ARE VERY USEFUL.

AND WE ARE LEARNING THINGS ALL THE TIME SO HOPEFULLY WE CAN ADD TO THAT KNOWLEDGE.

WE HAVE ANOTHER QUESTION HOW DOES THE FACILITY ADEQUATELY IMPLEMENT TIER FOUR AND POTENTIALLY TIER FIVE AND MARRIED, I WOULD LIKE YOU TO HAND THIS QUESTION OVER TO YOU.

WE'VE TALKED A LOT ABOUT THAT ELEMENT OF YOU HAVE A PROJECT UP AND RUNNING MARCH 2012 BUT YOU WANT TO READ HERE TO THE

GUIDELINES.

>>MARY CONNOR: I THINK IT'S AN EXCELLENT QUESTION AND THERE WERE A LOT OF OPERATING WIND FARMS ALREADY UP AND RUNNING AS OF LAST MARCH IN 2012.

SO THE GUIDELINES MAKE IT CLEAR THAT THE PROJECT IS ALREADY IN OPERATION IS TO START AT THE TIERED THEY ARE ADEPT AT THE TIME THE WIND ENERGY GUIDELINES WERE IMPLEMENTED SO FOR OPERATING FACILITIES YOU WOULD START WITH TIER FOUR AND IF YOU ARE IN DEVELOPMENT AT THE TIME WERE IN CONSTRUCTION YOU WOULD PICK UP AT THE RELEVANT TIER AT THAT POINT IN TIME. ONCE AGAIN COMMUNICATION.

SO SITTING BACK AND DEPENDING WHAT TIER YOU ARE ADEPT AT THE TIME THE GUIDELINES WERE DEVELOPED, SITTING DOWN AND HAVING A CONVERSATION WITH A LOCAL FIELD OFFICES FROM U.S. FISH AND WILDLIFE SERVICES IN THE STATE AGENCIES EXPLAINING YOUR PROJECTS IF THEY ARE NOT FAMILIAR WITH YOUR PROJECTS IF YOU'VE DONE POST- CONSTRUCTION MONITORING SHOWING THEM THE INFORMATION FROM THAT IN DISCUSSING WHAT YOU ARE SEEING ON THAT PROJECT SO STARTING THE CONVERSATION AT THAT POINT MOVING FORWARD BECAUSE IT'S A RELATIONSHIP YOU HAVE TO BUILD AND MAINTAIN FOR THE LIFE OF THE PROJECT.

>>: AND AGAIN WE TALKED ABOUT THE LIFE OF THE PROJECT EARLIER BUT IT IS POSSIBLE TO ESTABLISH THAT RELATIONSHIP EVEN IF THE DEVELOPER IS DIFFERENT FROM THE OPERATOR AND WE HAVE SEEN IT WHERE THERE MAY HAVE BEEN A TOTALLY SEPARATE ENTITY WHO WAS A DEVELOPER WHO MAY HAVE NOT WORKED WITH FISH AND WILDLIFE SERVICE BUT THE OPERATOR COMES IN AND CHOOSES TO WORK WITH THE FISH AND WILDLIFE SERVICE AND IT'S POSSIBLE TO PICK UP THAT RELATIONSHIP AND THAT COMMUNICATION AT THAT TIME EVEN AFTER THE FACILITY IS UP AND OPERATING.

>>: EXCELLENT POINT.

>>CHRISTY JOHNSON-HUGHES: ANY FURTHER THOUGHTS FOR MY GUESS?

WE ARE RUNNING CLOSE TO OUR TIME SO I WOULD LIKE TO GO AROUND THE TABLE AND JIM, DID YOU HAVE ANY FINAL THOUGHTS YOU WOULD LIKE TO SHARE WITH US?

>>JIM LINDSAY: COMMUNICATE EARLY AND OFTEN.

AND I THINK I WOULD LIKE TO AGAIN EMPHASIZE THE IMPORTANCE OF TIER THREE STUDIES AND THE NECESSITY FOR TIER THREE STUDIES AS IT RELATES TO MICRO SETTING TO AVOID MINIMIZE IMPACTS TO WILDLIFE AND STU.

>>STU WEBSTER: I WOULD HONE IN ON THE NOTION THAT THE GUIDELINES IS AN INSTRUMENT THAT IS REALLY MEANT TO SORT OF SET THE FOUNDATION FOR THAT FOUNDATION THAT JIM JUST TALKED ABOUT AND THE BODY OF KNOWLEDGE THAT WE GENERATE WITH THE

EFFORTS WE UNDERTAKE IN THE COLLABORATION ON A PROJECT LEVEL BASIS WILL INFORM THE REGIONAL CONDITIONS IF YOU WILL THAT WILL START TO BETTER QUANTIFY OR QUALIFY THOSE LARGER THEMES QUESTIONS AND CONCERNS THAT LARGELY REMAINED OUT THERE, FRAGMENTATION, AVOIDANCE BEHAVIOR AND CUMULATIVE IMPACTS AND THIS IS THE FOUNDATION BUILDING BLOCKS NOT ONLY FROM THE STANDPOINT OF THESE ARE OUR EXPECTATIONS FOR YOU AND VICE VERSA BUT IT'S ALSO THE BUILDING BLOCKS OF MAKING INFORMED DECISIONS GOING FORWARD AND SEEING OVER TIME A TREND WHERE THE IMPACTS ARE DECREASING RATHER THAN INCREASING OR STABILIZING.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY.
MANY ANY LAST THOUGHTS.

>>MARY CONNOR: ONCE AGAIN I KEEP SAYING COMMUNICATE AND COMMUNICATE AND COMMUNICATE AND I JUST ALSO WANTED TO MENTION THAT JUST THE DEVELOPMENT OF THE WIND ENERGY GUIDELINES AND ALL OF THE STAKEHOLDERS AND NGOS AND DEVELOPERS TO OPERATORS TO U.S. FISH AND WILDLIFE TO THE STATE AGENCIES AND GROUPS ALL GETTING TOGETHER AND WORKING TOGETHER ON THIS PROCESS BECAUSE YOU DON'T SEE THIS IN A LOT OF INDUSTRIES SO IT'S EXCITING AND IF YOU ARE NOT FOLLOWING THEM READ THE GUIDELINES AND I THINK YOU WILL FIND THEY ARE EXTREMELY USEFUL.

>>CHRISTY JOHNSON-HUGHES: TABER HOW ABOUT YOU?
FINAL THOUGHTS?

>>TABER ALLISON: WE HAVE SAID IT MULTIPLE TIMES BUT IT'S WORTH REPEATING BROADLY WE TALK A LOT ABOUT ADAPTIVE MANAGEMENT AND IN THIS PARTICULAR CASE THE GUIDELINES PROVIDE A STRUCTURE TO SUPPORT AN ADAPTIVE APPROACH. AND WITH THE GUIDELINES ARE APPLIED INCREASINGLY ACROSS THE COUNTRY WE ARE GOING TO DEVELOP A MORE CONSISTENT APPROACH TO GATHERING INFORMATION AND TO LEARNING MORE AND ULTIMATELY DOING A BETTER JOB IN AVOIDING AND MINIMIZING THE IMPACTS.

>>CHRISTY JOHNSON-HUGHES: ABSOLUTELY.
THANK YOU VERY MUCH.

WE WOULD LIKE TO WRAP THINGS UP.

WE DO HAVE A LIST OF REFERENCES OF THE MATERIALS THAT WE MENTIONED DURING THE BROADCAST.

AND THIS LIST WILL ALSO BE AVAILABLE ON THE WEBSITE WHERE WE WILL BE ARCHIVING THIS BROADCAST.

SO YOU CAN ACCESS IT AT ANY TIME.

ALSO, I WOULD LIKE TO MENTION THAT WE HAVE ANOTHER BROADCAST SCHEDULED AND THAT ONE IS SCHEDULED FOR WEDNESDAY JULY 31ST AT 2:00 P.M. EASTERN AND WE WILL BE TALKING ABOUT THE EAGLE

CONSERVATION PLAN GUIDELINES, BIRD AND BAT CONSERVATION STRATEGIES AND A LITTLE BIT MORE ABOUT SURVEY METHODOLOGIES. SO THANK YOU SO MUCH FOR JOINING US TODAY TO TALK ABOUT WIND ENERGY AND THE GUIDELINES AND WE WILL SEE YOU AT THE NEXT BROADCAST.

THANK YOU.